DOCUMENT RESUME

ED 324 886 EC 232 481

AUTHOR	Parette, Howard P., Jr.; VanBiervliet, Alan
TITLE	Assistive Technology Curriculum for Arkansans with Disabilities. Partnerships in Planning for State Technology Service Delivery. Project TAARK.
INSTITUTION	Arkansas Univ., Little Rock.
SPONS AGENCY	Arkansas Governor's Developmental Disabilities Planning Council, Little Rock.; Arkansas Univ., Little Rock. University-Affiliated Program.
PUB DATE	90
CONTRACT	06DD-0405/02; 89-554
NOTE	115p.; For related documents, see EC 232 479-483.
PUB TYPE	Guides - Non-Classroom Use (055)
EDRS PRICE	MF01/PC05 Plus Postage.
DESCRIPTORS	*Accessibility (for Disabled); *Assistive Devices (for Disabled); Child Advocacy; *Consumer Education; Delivery Systems; *Disabilities; Financial Support; Media Selection; Parent Role; *Technology
IDENTIFIERS	*Arkansas

ABSTRACT

The instructor's manual is part of a curriculum intended to help provide Arkansas persons with disabilities or their supporters with basic information on accessing and using assistive technology. The material is divided into three goal areas. The section on Goal 1, the development of technology advocacy concepts, covers basic definitions of assistive technology and services terminology, consumers, advocacy, advocacy groups in Arkansas, steps in the advocacy process, and how a consumer should respond when told assistive technology cannot be provided. The next section, on Goal 2, the development of service delivery concepts, reviews Arkansas providers of technology services, the evaluation process, and factors in selecting appropriate technology. Goal 3 is the development of technology funding concepts. Discussion centers on funding sources, funding terminology, and guidelines for assembling supportive documents. Each section includes suggested small group activities to provide simulated experience in applying the concepts. Nine transparencies provide additional information on selecting appropriate technology, steps in the advocacy process, rights of parents and their children, and parent communication skills. Among 16 handouts are a list of advocacy contacts, sample case studies, and sample letters justifying the need for a device. A resource guide lists technology centers, funding resources, readings (14), product availability resources, computerized databases, and videotapes. (DB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

EC

ED324886

Assistive Technology Curriculum

for Arkansans with Disabilities

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Howard P. Parette
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Prepared by

Howard P. Parette, Jr., Ed.D.
Alan VanBiervliet, Ph.D.
University of Arkansas
at Little Rock

EC 332441

Partnerships in Planning for State Technology Service Delivery

Cover artwork reprinted by permission of the artist, Martha Perske, from *New Life in the Neighborhood*, by Robert Perske. Nashville: Abingdon Press, 1988, p. 67.

Selected materials in this curriculum are reprinted or adapted by permission of the author, Anna Hofmann, from *The Many Faces of Funding*. Mill Valley, CA: Phonic Ear, Inc., 1982.

Selected materials in this curriculum are reprinted or adapted by permission of the author, Michael W. Morris, from *Assistive Technology Funding. A User Friendly Workbook*. (Developed in cooperation with the RESNA Technical Assistance Project and United Cerebral Palsy Association, Inc.). Washington, DC: RESNA Technical Assistance Project, 1990.

Project TAARK is funded in part by Grant No. 89-554 from the Arkansas Governor's Developmental Disabilities Planning Council, funded in part by the University of Arkansas at Little Rock, and funded in part by the University of Arkansas-University Affiliated Program in Developmental Disabilities, Grant No. 06DD-0405/02. However, the content does not necessarily reflect the position or policy of any of the aforementioned organizations, and no official endorsement of this publication should be inferrred.

Copyright © 1990
University of Arkansas at Little Rock

Table of Contents

Leader's Instructions..1

Goal 1: To Develop Technology Advocacy Concepts

Assistive technology.. 2
Assistive technology services.. 2
Consumers.. 3
Appropriate technology.. 3
Advocacy.. 3
Advocacy groups in Arkansas.. 3-4
Steps in the advocacy process.. 4-8
When you are told no.. 8-9
Activities.. 9-14

Goal 2: To Develop Service Delivery Concepts

Providers of technology services.. 15-25
The evaluation process.. 25
Factors in selecting appropriate technology.. 25-31
Activities.. 32-34

Goal 3: To Develop Technology Funding Concepts

Funding sources.. 35-42
Funding terminology.. 42-44
Assembling supportive documents.. 44-48
Activities.. 48-50

Materials and Resources

Transparency 1: Considerations in selecting appropriate technology
Transparency 2: Steps in the advocacy process
Transparency 3: Rights of consumers
Transparency 4: Consumer communication skills
Transparency 5: Considerations in selecting appropriate technology
Transparency 6: Goal 1 group discussion questions
Transparency 7: Arkansas Technology Access Program (ARTAP)
Transparency 8: Personal factors in selecting appropriate technology

Transparency 9: Technology factors in selecting appropriate devices and equipment
Transparency 10: Goal 2 group discussion questions
Transparency 11: Goal 3 group discussion questions
Handout 1: Advocacy contacts
Handout 2: Sandy
Handout 3: Harry
Handout 4: Most common excuses
Handout 5: Technology service providers
Handout 6: Cassandra
Handout 7: John
Handout 8: Funding streams for assistive technology
Handout 9: Definitions of assistive technology
Handout 10: Funding terminology
Handout 11: Assembling supportive documents
Handout 12: Sample justification
Handout 13: Sample justification
Handout 14: Sample justification
Handout 15: Sample justification
Handout 16: Bob
Supplement 1: Individual and systems change
Supplement 2: Resources
Curriculum update

Leader's Instructions

Format. The format for the curriculum lends itself to several presentation styles, depending upon the time constraints of the instructor and the level of interest and backgrounds of consumer participants. Three goal areas form the core of the curriculum. Goal 1 focuses on the development of technology advocacy concepts, while Goal 2 addresses technology service delivery concepts. Goal 3 focuses on funding concepts. Each goal section is organized in the following manner. First, objectives for the goal area are specified. Second, the objectives are followed by an information base which corresponds to each objective specified at the beginning of the section. Third, at the end of each goal section, activities are described which may be used as appropriate by the instructor to reinforce concepts presented.

Resource materials. The use of transparencies and handouts is encouraged to enhance any presentation. Transparencies (T1-11), Handouts (H1-16), and Supplements (S1-2) are ready for reproduction and are contained in the Materials and Resources section of the curriculum. References to each of these transparencies and handouts is noted in the curriculum narrative to cue the instructor when the resource material should be used. Supplementary materials are also contained in the Materials and Resources section of the curriculum. Supplementary materials are not mentioned in the curriculum narrative, but may be used at the discretion of the instructor as appropriate for presentations with differing groups of consumers.

Four Guides have been developed for use with the curriculum, each focusing on a particular target audience: parents, infants, work-age individuals, and the elderly. The use of these Guides is strongly encouraged to enhance any presentation or workshop which is conducted using the curriculum (see Curriculum Update in back for information on how these Guides may be obtained).

Presentation options. For a lengthier presentation, an instructor may simply wish to proceed from the beginning of the curriculum to the end, presenting information directly from the curriculum. For a shorter presentation, the instructor may desire to focus only on one or two of the three topical areas (Advocacy, Service Delivery, or Funding). Instructors may also wish to excerpt selected information from each of the three sections if the needs of the group dictate specific information needs.

It is noted that persons using the curriculum should not limit themselves to presenting the information contained herein. Other information may be incorporated into presentations to meet the special needs of particular consumer audiences. These materials should be added to the back of the curriculum for future use by an instructor.

Goal 1: To develop technology advocacy concepts.

1.1 *Objectives:*
During small group activities, parents will:
- ☐ **define assistive technology;**
- ☐ **define assistive technology services;**
- ☐ **define 'consumer';**
- ☐ **define appropriate technology;**
- ☐ **define advocacy;**
- ☐ **identify advocacy groups in the state that can assist them in securing technology;**
- ☐ **identify important steps in the process of advocacy; and**
- ☐ **identify questions that are important to ask when funding is denied.**

1.2 Information Base

☐ ***Assistive technology.*** Any device or tool, whether purchased off the shelf, modified, or customized, which can help persons with disabilities in their daily life activities may be thought of as "assistive technology". There are many types of assistive technology which are changing the way in which all people live and work. Wheelchairs, computers, special utensils for eating, and devices that control heating, cooling, and lighting are just a few of the many devices and tools that are considered to be assistive technology.

☐ ***Assistive technology services.*** There are services which are related to assistive technology that are important because they cannot be separated from the technology itself. Neither the technology nor the assistive technology service can exist by themselves. Both are necessary in the lives of persons with disabilities. Evaluations are conducted to determine the strengths and weakness of a person with a disability. Companies rent or lease equipment to people. People look at the many different types of technology which are available and make decisions about what is best for a person with a disability. A local carpenter or welder adapts or customizes a piece of equipment. A physical, occupational, or speech therapist uses special exercises with the person with a disability. A vocational counselor shows the person how to use an adapted computer keyboard to operate a machine in a work setting. In each of these cases, a service is provided that can help the person with a disability to select, obtain, or use a technology.

❒ ***Consumers.*** A consumer may be defined as anyone who is affected directly or indirectly by the service delivery system. This will include persons with disabilities, their families, people who have received services from anyone in the system in the past, persons who may receive services in the future, and persons who represent the best interests of persons with disabilities.

[Transparency #1 - Considerations in Selecting Appropriate Technology]

❒ ***Appropriate technology.*** The expression "appropriate technology" means that the device, equipment, or service meets that person's needs. This is the single most important characteristic of appropriate technology for consumers with disabilities.

It is also important for the person with a disability to look at many different kinds of technology and decide which would be most appropriate for him or her. Other factors have to be considered including personal factors, characteristics of the technology, the cost of the technology, and the source of funding.

❒ ***Advocacy.*** Advocacy is a special type of problem solving. It is problem solving to protect the rights of the person with a disability and to improve the quality or amount of technology-related services that the person is provided. This may include problem situations with Medicaid or welfare benefits, education, accessibility, housing, employment, residential placement, medical services, or transportation.

In order for a consumer to get appropriate technology to meet his or her needs, they sometimes have to use advocacy skills. There are many different types of advocacy, but for the consumer, the most important type to be used in getting needed technology and related services is individual advocacy. This means the use of advocacy skills that help the person to be less dependent on others to get the technology and related services that he or she needs. When the person begins to act as if he or she knows what their rights are regarding technology and assert those rights, the person will be seen as being powerful by others and treated with more respect, which will, in turn, help the person get services that are needed.

❒ ***Advocacy groups in Arkansas.*** There are many groups and organizations in the state which can help persons with disabilities get needed technology. Contained on Handout #1 is a listing of a number of important groups in Arkansas that may be of assistance to consumers in getting needed technology. Since the field of technology

[Handout #1 - Other Advocacy Contacts]

is a relatively new one, there has not been a great deal of advocacy activity across the state designed to specifically help people obtain technology. Many groups can provide information and training to consumers, but there is only one agency that is active at many levels in protecting the rights of persons with disabilities. The following provides a desciption of this important agency.

Advocacy Services, Inc. One of the most important agencies which has helped people get needed services is Advocacy Services, Inc. (ASI). This agency is designed to protect and maintain the legal and civil rights of people with disabilities, including helping them get needed technology and related services. Persons who can receive help from this agency include those with developmental disabilities, clients or client applicants of the Division of Rehabilitation Services, and persons with mental illness in residential facilities or who have been discharged within 90 days.

ASI provides a range of services that can be used to help a person with disabilities get needed technology and services. These include advocacy, legal, legislative, and training services. The kinds of advocacy services provided by ASI includes investigation, intervention, or negotiation on behalf of the person with a disability who needs technology or related services. Information on, or referral to, a more appropriate agency that can help the person get needed technology and services is also included if necessary.

Legal services which are provided by ASI include technical support to attorneys who may be working for the person with a disability, referring persons to attorneys who are familiar with disability law, contributing to training workshops and seminars about the legal aspects of technology service delivery, and, when appropriate, providing direct legal representation in cases that involve the need for technology and services.

Legislative services that are provided includes the review and tracking of legislation which can affect technology service delivery. ASI will also provide information to persons about laws that are being considered by the state legislature which affect technology service delivery. Finally, ASI staff can provide training, workshops, and presentations regarding their services, the process of getting needed technology, or the legal rights of persons with disabilities who need technology and services.

[Transparency # 2 - Steps in the Advocacy Process]

❐ ***Steps in the advocacy process.*** There are a number of steps in the process of being an effective advocate to get needed technology and services.

Step 1: Rights. The first step in the advocacy process is for the person with a disability to be aware of his or her rights. There are a number of rights which relate to technology and services. These include:

[Transparency #3 - Rights of Consumers]

- **The right to information about devices and available services.** Consumers have a right to be given information about technology and related services in the state, and the right to get that information.

- **The right to advocacy for needed technology and services.** Consumers have the right to expect agencies and schools to help them get needed technology. Consumers also have the right to do all that they can do individually to get needed devices.

- **The right to honest answers about evaluations, testing, meetings, and any activities which affect the person's ability to get needed technology and services.** Consumers have the right to get honest answers about their technology needs from professionals. This includes information about the results of evaluations, recommendations made by professionals following these evaluations, and other information about their technology needs.

- **The right to independence using technology.** Technology is a way to secure more independence by making consumers less dependent on other people. The right to independence for persons with disabilities can be seen in no less than 35 state and federal laws. Independence should be the cornerstone for decisions made regarding technology.

- **The right to due process in getting needed technology and services.** This includes the right to receive notice about decisions made about the consumer's technology, the right to a hearing to protest these decisions, the right to be represented by an advocate in that process, and the right to appeal the decisions of the hearing.

- **The right to disagree with professionals who are involved in making decisions about technology and services that the person can receive.** Since consumers have the right to be involved in decisions made about their technology needs, they also have a right to disagree with decisions which they feel are not in their best interests. Sometimes misunderstandings will occur when consumers disagree with professionals. Frequently, this problem can be avoided if both consumers and professionals keep their discussions on the issues of technology needed by the consumer, and not allow feelings to enter into the discussions. However, consumers and professionals should remember that the consumer's needs are most important. Consumers should not be afraid to let professionals know if they disagree with them. Opinions can be presented in a way that will not cause hurt feelings.

- **The right to have feelings.** All consumers have a right to feelings about technology that they would like to use. We all have choices for buying goods and services. Technology is no different.

Awareness of these rights gives consumers a stronger position from which to work to get needed technology and services.

Step 2: Letting professionals know about your needs. Persons with disabilities must tell people about their technology and related service needs to be effective advocates. Whatever the need is, whether it is a need with dressing or eating, going to the bathroom independently, using numbers for mathematical calculations, or grasping and holding small objects, the need must be clearly stated to others. It is important to state whether the need the person has is an ongoing one, or whether it is one that is worse at particular points in time. Consumers can help professionals to make decisions about their technology needs in a number of ways. If the consumer has received services from any agency including the school, he or she may ask to look at their case file and get important information. Under the *Family Educational and Privacy Act of 1974*, consumers have the right to ask for and get copies of their records.

It is important to know something about the laws which can affect whether or not technology can be provided to the consumer. Few people know all the laws which are important for the consumer. However, it is important to know where to get this information. Consumers should contact Advocacy Services, Inc. at 1-800-482-1174 or (501) 371-2171 to find out what their rights are under the laws. Information about specific laws and how they affect funding for assistive technology is discussed in the third section of the curriculum (pp. 36-42).

Consumers should also try to get to know the people who make decisions about the technology that they may receive. Names, addresses, phone numbers, and other information about the people involved is *important* since consumers may have to talk with many persons at the agency to get needed technology.

Talking with professionals is very important. To be successful in talking to professionals, consumers should look at the skills that they have in "assertiveness". This means how good they are in getting things done, and getting things that they need for themselves. Consumers have to be assertive to present their needs in a way to get the things they need for themselves. These skills include:

[Transparency # 4 - Consumer Communication Skills]

- keeping eye contact when speaking and listening;
- keeping good body posture when speaking;
- using facial expressions to make needs known;
- using hand and body gestures when this is proper; and
- changing the tone of voice while speaking.

It is also important to express an understanding of things which professionals say to the consumers, and to ask questions. These important skills tell the person with whom consumers are speaking that they are prepared, that they are serious, and that they are listening to what is being said. If it is felt there are problems in any of these areas, consumers should make an effort to develop these skills. Advocacy Services, Inc. can help consumers develop these skills.

Sometimes words which are difficult to understand are used when professionals are speaking to consumers. When this happens, consumers should ask professionals to explain the meaning of the words they are using. It is not reasonable for anyone to expect consumers to know all words used by professionals, so they should not be afraid to say "I don't know,""I don't understand,"or "Can you tell me what you mean by ____?"

Consumers should not get trapped into saying things such as "If you don't ______, then I'll have to _______." People do not like being told that they must "have to do something", or that they must "take something or leave it." Generally, these types of statements make the task of getting technology for them more difficult.

If such a thing is said to the consumer, they should ask the professional questions. Consumers should ask what other things were considered. They should also suggest other things that can be done. Lastly, the consumers should ask if there are things which can be done other than what the professional has said.

Consumers should also know what the criteria are to receive services from various agencies. If the consumer does not meet the eligibility criteria for a particular agency, the consumer should try to find out what can be done to get services from the agency. Consumers should ask what kinds of information they need to be considered for services by the agency, as well as to ask about how to apply for services. Finally, the consumer should get information about the appeal process if they are turned down for services.

Step 3: Keeping records. When making telephone calls to persons working at agencies, consumers should make notes of names, telephone numbers, and information given by the persons with whom they speak. Letters which are written and received and records that consumers get can be very important. These notes, letters, and records should be kept, including any information that is obtained in a folder for later use. Consumers should ask for a written statement of any actions taken by agencies or schools that affect them. They should also get written statements of when actions or services are to begin.

Step 4: Follow-up. Follow-up is important to see that the needed services are being given. Consumers should look at what technology and services the agency or school is giving to the consumer and how often the services are provided. If there are other needs that the consumer has, or if there are problems, the consumer can use their advocacy skills to try and get the technology and services that are needed.

When you are told 'no'. When consumers are told that assistive technology cannot be provided to them, they must get information about why the technology cannot be provided. Consumers should give thought to the following concerns followed by asking others three specific questions:

[Transparency # 5 - When You Are Told No]

[Note: These materials have been excerpted from: Morris, M. W. (1990). *Assistive Technology Funding. A User Friendly Workbook.* (Developed in cooperation with the RESNA Technical Assistance Project and United Cerebral Palsy Association, Inc.). Washington, DC: RESNA Technical Assistance Project, p. 7]

- Has the consumer obtained information about what Arkansas law and regulations require? (to receive funds, a state must provide certain services and follow specific procedures)
  Question to ask: *Is it a state law?*

- Has the consumer determined what choices Arkansas has under the law and regulations? (Arkansas selects from a menu of service options, and who will be eligible for services)
  Question to ask: *Is it a state policy?*

- Has the consumer determined what is not required by law, but what has become a custom or practice in Arkansas based on decisions made by the state lead agency?
  Question to ask: *Is it simply custom or local current practice?*

Each of these questions is of critical importance. Consumers who have information about laws and policies will be adequately prepared to make changes in the local service delivery system by being more informed. Consumer interest, expectation and advocacy when organized can change laws, policies, and practices. A director or supervisor may have the authority to make changes at the local or state level. Changing laws or regulations will take more time and need the support of many individuals and groups with similar interests.

One way to become informed about what the state is required to provide is to read the various state plans that are developed by state agencies receiving funding from the federal government. Most federal laws which provide funds to states require that a state plan be submitted for approval by the federal agency. Each federal law will list requirements to be met by the state and to be described in the state plan. Consumers should request copies of these state plans, such as those developed by the State Department of Education, Division of Develomental Disabilities Services, and Division of Rehabilitation Services. Once copies are obtained they should be reviewed to determine how the state intends to implement federal laws that provide funds for persons with disabilities.

Activities

Activity 1. Distribute pencils and paper to participants. Have them break into small groups. Ask each group the questions presented on Transparency #6. Examples of some possible answers are indicated **in bold type.**

[Transparency #6 - Goal 1 Group Discussion Questions]

- What is assistive technology? **[e.g., Any device or tool, whether purchased**

off the shelf, modified, or customized, which can help persons with disabilities in their daily life activities] Can you make a list of 20 types of assistive technologies that might be used by persons with disabilities? by infants and young children? **[e.g., Computers, mobility devices, artificial limbs, seating equipment, adaptive spoons]** by school-age children? **[e.g., Computer learning programs, wheelchairs, augmentative communication devices, velcro adapted clothing]** by persons in the work force? **[e.g., Telephone speakerphone, head pointer for use with word processor, page turner, book elevator]**by the elderly? **[e.g., Canes, walkers, hearing aids, talking alarm clocks, foam grip eating utensils]**

- What are assistive technology services? **[Any service that is related to assistive technology, including those relating to evaluations, prescription, maintenance, and repair]** What are some examples? **[e.g., Speech evaluation, service repair by local wheelchair supplier, battery charge, adjustment made to an artificial arm, physical and occupational therapy sessions]**

- How is a consumer best defined? **[All persons are consumers]**

- What are the three important components of appropriate technology for a person with a disability? **[Needs of the consumer, personal factors and characteristics of the technology, cost of the technology and available funding]** Which of these is the most important? **[The needs of the consumer is the most important factor]** (instructor may use Transparency #1)

- What is advocacy for technology? **[It is problem solving to protect the rights of the person with a disability and to improve the quality or amount of technology-related services that the person is provided]**

- What are the groups in your local community that might act as advocates for persons with disabilities? **[e.g., Advocacy Services, Inc., ARC, Coalition for the Handicapped]** (instructor may use Handout #2)

- What are the steps in the advocacy process? **[Understanding one's rights, letting professionals know one's needs, keeping records, follow-up]** (instructor may use Transparency #2)

Activity 2. Present participants with Exercises on Handouts# 2 and #3. Have them read the background material or read them orally to the group. Ask the groups to discuss the questions which follow and to respond to them. Have each group designate a spokesperson who will report the responses of the group to the total group. Examples of some possible responses to the questions are presented below **in bold type.**

[Handout #2 - Sandy]

What information is still needed by the parents?
[e.g., Any evaluations that have been done by the school, physicians, etc.; anecdotal records maintained by her teacher; copies of laws; letter from Arkansas Department of Education regarding speech therapy as a related service]

What arguments can the parents present for getting speech therapy for Sandy?
1. Sandy will outgrow her speech problem: therapy isn't needed.
[e.g., Most children outgrow speech problems by the time they enter the public school while Sandy hasn't outgrown her problem; speech therapy can help Sandy to benefit from special education; her speech problem is causing her to become withdrawn]

2. We haven't noticed any speech problem.
[e.g., Her speech problem has been observed by the classroom teacher; other students tease her about her speech; she should have had an evaluation to determine whether a speech problem exists; the evaluation that was done before she was placed in special education clearly indicates that a speech problem was present]

3. We don't have staff available or money to provide the service.
[e.g., An IEP Committee should determine whether or not she needs speech therapy and whether the school should provide it; if she needs speech therapy, it should be provided without cost to the parents]

4. They'll make me try to feel guilty for asking for too much since Sandy already receives teacher consultation services and adaptive aids for her visual handicap.
[e.g., It is the school's responsibility to provide a free and appropriate public education to all children-speech therapy is one service that can ensure that Sandy gets the education that she needs]

[Handout #3 - Harry]

1. What violations of rights seem to be present in Harry's case?
(e.g., Modifications of bathroom have not been made; there is a lack of modification in the work environment that would enable him to have the same access to information as others--discrimination]

2. What responses to the following arguments might be presented to help Harry get needed technology?

- We can't change the bathrooms in the building.

[e.g., Is that because of law, or policy? Why is it that others have access to the facilities, but Harry is not given access? Are you saying that because he uses a wheelchair, he is not entitled to the same access to the bathroom as the other employees?]

- You have to use a typewriter?

[e.g., Is that because of law, policy, or simply office custom? Other people in the office have a computer which enables them to work more efficiently; Harry has been trained to use a computer, and it would make him a more productive worker]

- We can't buy you a computer, or we'd have to buy everyone something special.

[e.g., How many people have asked for something special in the company? Others have computers, so why can't Harry?]

- A speakerphone wouldn't help you to be more productive.

[e.g., A speakerphone would enable Harry to hear better, resulting in greater work productivity since he would not require as much time to ask questions about what others are saying to him; speakerphones are commonly used in the business world]

[Handout #4 - Common Excuses]

[Note: These materials have been excerpted from: Morris, M. W. (1990). *Assistive Technology Funding. A User Friendly Workbook.* (Developed in cooperation with the RESNA Technical Assistance Project and United Cerebral Palsy Association, Inc.). Washington, DC: RESNA Technical Assistance Project, p.14]

Activity 3. Present participants with Simulation Exercise on Handout # 4. Orally read each statement to the group and have them respond, or ask the groups to respond in small group sessions. If small group activity is used, have each group designate a spokesperson who will report the responses of the group to the total group. When all groups have had adequate time to compile their lists, ask the groups to share their responses. Make a list on a blackboard, flip chart, or overhead. Examples of some possible responses to the questions are presented below **in bold type.**

1. For each excuse, list three effective responses.

a) The law says we can't help you.
[e.g., Please show me a copy of the law. Is it law, or policy that says you can't help? I understand the law quite well, and it does not say that you *can't* help me.]

b) We would like to provide you with funding, but we have limited resources.
[e.g., How are the resources you have being used? How can I qualify for being considered for use of the existing resources? Could you put that in writing?]

c) We are a payer of last resort, so come back to us after you have exhausted all other resources. **[e.g., You are the last resort. Where is it documented that you are the payer of last resort? Who else would you recommend that I talk with other than** (person's name)?]

d) We don't agree these needs could be met by assistive technology.
[e.g., I have documentation that these needs can be met by assistive technology? May I have a copy of the guidelines for your appeal process? What is the basis of that observation?]

e) What you want costs too much! We have limits on what we can spend on a single client.
[e.g., What is the limit that you can spend on a client? Is that limit a matter of state law or agency policy? Are there exceptions that are made?]

f) You are not eligible for services from this agency.
[e.g., What do I have to do to become eligible for services? Do you have information about who is eligible for services? What is the process of lodging an appeal regarding eligibility?]

g) Although this kind of device would be optimum for your needs, we are not required to provide that level of service.
[e.g., Are you not required by law, or is it a matter of policy or custom? Could you please show me in writing where it is specified what levels of service you may provide? Are you saying that you are not concerned about my optimal functioning?]

h) Talk to your insurance company. That is who should assist you.
[e.g., I have spoken with them and they say to talk to you. My insurance policy will not cover this technology need. Other people with my needs have been provided services by your agency.]

i) We can put you on a mailing list.
[e.g., I am already on your mailing list. I would prefer to talk to your supervisor if you are unable to assist me. May I have a copy of the people who are already on your mailing list?]

j) Our professional experts don't agree with your assessment of needs.
[e.g., Though your experts are entitled to their judgments, I have experts who agree with mine. Please provide me with a copy of the findings of your experts. Would you please explain to me the process of appealing the findings of your experts?]

2. For each excuse, assume a child of school age with a disability is seeking the support of assistive technology. List an effective response for each excuse. **[Any of the above examples might be used with a school-age child]**

3. For each excuse, assume an adult with a disability is seeking assistive technology support. List an effective response for each excuse. **[Any of the above examples might be used with an adult]**

Goal 2: To develop service delivery concepts.

2.1 *Objectives:*
During small group activities, consumers will:

- ☐ **identify important providers of technology services in Arkansas;**
- ☐ **identify components of the Arkansas Technology Access Program;**
- ☐ **state the importance of the evaluation process in getting technology and services; and**
- ☐ **identify important factors in selecting appropriate technology.**

2.2 Information Base

[Handout #5 - Technology Service Providers]

☐ *Providers of technology services.* There are a number of important providers of technology and related services in Arkansas. These providers include both state and private agencies and organizations. These sources of funding for technology will be discussed in detail in the next section. However, some of the important sources for technology funding that all consumers should be aware of include the following:

[Transparency #7 - Arkansas Technology Access Program (ARTAP)]

Arkansas Technology Access Program (ARTAP)

ARTAP is a statewide system of technology-related assistance. It was created by a grant from the federal government and is sponsored by the Division of Rehabilitation Services. ARTAP is made up of several components which provide persons with disabilities and their families with special types of technology-related services.

Basically, ARTAP is made up of a centralized technology information system, five technology access centers (TACs), an Equipment Exchange Program, a User-to-User network, and regional technology specialists as shown on Transparency #7. The various components of ARTAP are described below.

Arkansas Technology Information System (ARTIS). The University of Arkansas at Little Rock developed and will maintain ARTIS. This will be a consumer-responsive statewide system of information, storage, and retrieval enabling *all* Arkansans to get information about assistive devices and services. This system has a number of important goals which include making information available to all persons regarding technology and services, conducting training, marketing the system on a statewide basis, improving cooperation among agencies, developing a User-to-User network, creating a system of regional technology specialists to act as resource persons in local communities, and creating an equipment exchange program of used assistive devices. ARTIS will develop a publicly distributed database containing this information that will be accessible to all persons. The system will output information in print, large print, Braille, and auditorily.

Technology Access Centers (TACs). Five TACs have been developed as part of the ARTAP system, each providing specialized technology-related services in one of the following areas: visual impairments, hearing impairments, cognitive and language development, communication, and independent living. The TACs will serve persons *of all ages* and *all disabilities*. TACs will be designed to freely provide information and hands-on demonstration concerning targeted technology devices and approaches to consumers, parents, employers, business, and the general public. The TACs will also provide and participate in training activities concerning technology and awareness and provide technical assistance to consumers, professionals, and policy-makers. Additionally, TACs will provide formal evaluations/assessments and other services, such as therapy and device construction, for a fee. The TACs will maintain a record on a database of the technology information resources which it possesses, and this database will be shared with the ARTIS, other TACs, and persons across the state concerned with technology access. Each TAC will establish an advisory board with at least 60% representation by persons with disabilities and their families. A description of each of the TACs follows.

- ***Communication and Learning Technology Access Center***

The two TACs in Communication and Cognitive and Language Development were developed by and will be maintained by the Arkansas Easter Seal Society. The Communication TAC will focus on augmentative communication and related types of technologies for non-speaking persons, as well as access to computer equipment. The Cognitive and Language Development TAC will serve persons having learning disabilities, head injuries, and other types of learning and language problems. This

TAC will provide information, demonstrations, and training on software for word processing, mathematics, and related technologies.

- ***Assistive Listening Devices Center***

The TAC for Deaf and Hearing Impaired was developed by and will be maintained by the Arkansas Association for Hearing Impaired Children (AAHIC). This TAC will provide information, hands-on experiences, training, and assessments in assistive devices for persons with hearing impairments. Examples of such technologies include signalling systems, telephone amplifiers, hearing aids, amplification systems, speech training aids, manual sign training computer programs, and telecaption equipment.

- ***Technology Center for Independence***

The TAC in Independent Living was developed by and will be maintained by Life Styles of Fayetteville. This TAC will focus on technologies that will assist *anyone with a disability* to function more successfully in the community. It will provide information, hands-on experiences, training, and assessments on assistive technologies concerned with home management, personal care, home modifications, architectural modifications, home health, and recreation.

- ***Technology Access Center-Visual Impairments***

Developed cooperatively by several agencies led by Lions' World Services for the Blind, this TAC will provide information, hands-on experiences, training, and assessments on assistive technologies for persons with visual impairments. Examples of these technologies include auditory and tactile time and temperature aids, talking file storage, electronic sensing devices, navigation aids, and tactile Braillers.

Arkansas Children's Hospital (ACH)

This private, non-profit institution is the only pediatric medical center in Arkansas, and is the seventh largest in the country. Though all departments and clinics are interrelated, there are several service components that have particular relevance to persons with disabilities 0-21 years of age who have disabilities.

- ***Audiology Department***

The Audiology Department provides comprehensive audiological services with a strong emphasis upon infant assessments. Testing for hearing aids, prescriptions for assistive devices, and referrals to other service providers are principle activities.

• *Speech Pathology Services*

This diagnostic service component focuses specifically on evaluations and treatment of a variety of speech and related disorders. The department refers children with disabilities to other agencies that provide needed technology services. Pre-augmentative communication skill training is provided, as well as training in the use of adapted switches. Computer training is additionally given to a limited degree.

• *In-Patient Rehabilitation Clinic*

The Pediatric Habilitation Clinic provides comprehensive specialty medical services for children, adolescents, and young adults and their families with physical disabilities. Multidisciplinary evaluations and treatment is available, with a particular emphasis on assessments, referrals, and seating evaluations.

• *Habilitation Outpatient Clinics*

Services provided on an in-patient basis in the Habilitation Clinic are also provided to persons with disabilities on an outpatient basis.

• *Progressive Care Unit*

This is a highly specialized pediatric and adolescent acute rehabilitation unit offering all aspects of treatment serving persons in need of acute rehabilitation after trauma. It is also available to persons with a wide range of disabilities. Treatment is provided in a comprehensive and coordinated manner, including such services as evaluation and prescription of orthopedic devices and other equipment, physical and occupational therapy, and augmentative communication evaluation and prescription.

• *Rehabilitation (Occupational Therapy)*

The Occupational Therapy Department evaluates and treats children with physical disabilities, developmental delays, perceptual-motor problems, and oral motor difficulties. The primary services offered are seating evaluations (including modifications and fabrications), splinting, determining adaptive equipment needs, feeding, developmental training, and instructions in daily living. A computer play center has also been developed in cooperation with the Junior League of Little Rock. This center provides a variety of opportunities for children with physical disabilities to use computer technology.

Arkansas Easter Seal Society

This private organization provides a wide range of technology-related services to consumers with disabilities across the state.

Early Intervention Program and Preschool. This program provides assistance in equipment construction and loans adaptive equipment, loans adative toys, and provides computer training to children with disabilities 0-5 years of age. Physical and speech therapy is also provided.

Residential Center for Orthopedically Impaired Children. Children with physical and motor impairments referred from school districts can be provided with technology-related services at the residential center. The primary emphasis of training activities provided is computer usage and augmentative communication strategies. Occupational and speech therapy are also provided.

ArkansasTechnology Resource Center. This Center is a member of the National Special Education Alliance and provides a range of services to persons with disabilities through various programs. These include the following:

- ***Computer Evaluation Project***

This program is designed to evaluate the ability of vocational rehabilitation clients to use computers. Services also include development of alternative access strategies, training in the use of computers and referral to appropriate local, state, and national programs, agencies, and professionals.

- ***Technology Access Centers***

Two specialized technology access centers (TACs) for technology-related services of the Arkansas Technology Access Program (ARTAP) are housed within the Arkansas Technology Resource Center. These include a TAC for communication and a TAC for language and cognitive impairments. A description of the types of services provided is noted in the previous description of ARTAP.

- ***IBM's Offering for Persons with Disabilities***

Hands-on experience in using IBM hardware and software programs for the computer are available to persons with disabilities. This program provides computer evaluations and prescriptions, and if the person wants to purchase an IBM, he or she may do so at discount prices.

- ***Augmentative Communication Services***

This program provides evaluation, training, and support services to children who are unable to speak. Training is also given to therapists and teachers in the use of augmentative communication strategies.

- ***Lending Library***

A library consisting of books, equipment, videos, and software is available to parents, persons with disabilities, and professionals.

- ***AppleLink***

Through the AppleLink system the Arkansas Technology Resource Center is electronically linked with other national technology centers, companies that sell technology, and other experts. Parents, persons with disabilities, and professionals may use this system to get quick responses to technology questions from people across the country.

Operation Outreach. Outreach is an evaluation and consultation service for students with orthopedic handicaps. It operates through a team consisting of an occupational therapist, speech/language pathologist, adaptive physical educator, and a special education teacher who travel to local school districts across the state on request. Technology support includes computer and augmentative communication training, as well as consultation in seating/positioning, self-help, and leisure equipment adaptations. Recommendations are also provided regarding how to develop technology-related programs.

Baptist Rehabilitation Institute (BRI)

This 192 bed facility is a comprehensive rehabilitation hospital, complete with the most modern inpatient and outpatient equipment available. A full range of individualized evaluation and services is offered to persons with disabilities. After an initial evaluation, an individualized program is designed for each patient. Components of the program may include physical therapy, occupational therapy, psychology, rehabilitation nursing, therapeutic recreation, respiratory therapy, medical social work, orthotics, prosthetics, and speech/language pathology.

Programs which directly relate to technology that are offered through BRI include the following.

- ***Amputee Program***

Professionals work with persons having upper extremity amputations in the use of their myoelectric prostheses, provide positioning equipment for positioning persons having lower extremity amputations, and provide adaptive equipment to meet individual patient needs/goals.

- ***Arthritis Program***

BRI staff fabricate splints to correct or prevent deformities in patients. They also develop adaptive devices for persons with disabilities necessary for grooming, toileting, household tasks, and meal preparation.

- ***Burn Injury***

Professional staff participate in the development of splints, and develop silicone elastomer inserts to decrease scarring for burn victims.

- ***Chronic Obstructive Pulmonary Disease***

Staff provide adaptive equipment focusing on home management and activities of daily living for persons with disabilities.

- ***Chronic Pain Management***

In this program, each person's pain is assessed and a multi-facted treatment program is devised, aimed at increasing functional abilities and decreasing discomfort. Treatment may include relaxation training, rehabilitative exercise, psychological counseling, vocational counseling or medication management.

- ***Head/Brain Injury Program***

Special services offered to persons recovering from head/brain injuries include self-care and individual exercise training, speech/language pathology retraining, community re-entry training, vocational rehabilitation, adapted driver training, and wheelchair mobility and therapeutic recreation.

- ***Neuromuscular Disease***

This program emphasizes the development of communication devices for persons with severe impairments. BRI staff work with environmental control units designed to help persons achieve independence in daily living activities. They also provide seating equipment and modifications to position persons in wheelchairs.

- ***Orthopedic Problems and Joint Replacement Rehabilitation***

The provision of adaptive equipment for home management and activities of daily living is a primary technology-related activity in this program.

- ***Spinal Cord Injury***

This program offers services from inpatient rehabilitation through community re-entry. Specific components of the program include self-care and individual exercise, an educational program that addresses specific issues and concerns for persons with spinal injuries, community re-entry training, vocational rehabilitation services, adapted driver education, wheelchair mobility training, and therapeutic recreation.

- ***Stroke Program***

Special services offered to persons recovering from strokes include the same components as that in the head/brain injury program.

College of the Ozarks

The Harvey and Bernice Jones Learning Center at this institution of higher learning houses the Ben D. Caudle Learning Program, the first of its kind in the world. The Learning Center is specifically designed to help college-age students with specific learning disabilities such as dyslexia, dysgraphia, dysorthographia, and dyscalculia. The introduction of a "learning strategies" program within the Center's curricula provides the opportunity for students to learn to become independent in reading and writing skills. Thus, they do not just use technologies (e.g., taped books and lectures), but are taught specific learning skills which will generalize so that the student can participate more fully in all aspects of college life and be more salable in the job market. Diagnostic testing and intensive support services are provided to all students designed to meet each person's special needs. These support services include: extended time testing using dictation or computer technologies; textbook taping; typing services; and computerized study skills modules covering such areas as time management, and notetaking.

New Medico Rehabilitation Center at Timber Ridge Ranch

This is a residential facility offering post-acute rehabilitation services to persons who have sustained brain injuries. Services are directed toward optimizing each person's functional skills in the areas of communication, cognition, behavior and emotional control, physical functioning, and vocational competitiveness. Specific services which are offered that relate to technology include the following.

- ***Coma Intervention***

Through New Medico's coma intervention services, patients receive a regimen of sensory stimulation from an interdisciplinary team of head injury specialists.

- ***Community Re-Entry and Vocational Programs***

This program offers persons with disabilities intensive life skills training that is critical for independence, with an emphasis on self-care activities of daily living, cognitive and communication skills, social skills, and physical mobility. The vocational program provides vocational assessment, prevocational training, and job skills training. It is designed to develop job placements through a supported employment model and community living options.

- ***Assessment***

In addition to the ongoing assessment that is central to all programs offered at the center, a short-term assessment is available to persons not involved in a full rehabilitation program. Each person's abilities and potential for growth are assessed by a variety of specialists under the direction of a neuropsychologist.

- ***Supervised and Independent Living Services***

Long-term and short-term residential options are available to persons with disabilities. Specially equipped apartments, townhouses, and group homes are located in both suburban and metropolitan neighborhoods, as well as on the grounds of the facilities. Supervision and assistance are provided by personal care attendants available around-the-clock or as needed. Support services are also available to those persons living on their own and therapy may be provided in the residence if needed.

- ***Day Treatment/Outpatient Services***

For persons with disabilities who are living on their own but who have specific rehabilitative needs, this program offers individual outpatient services as well as full day treatment programs.

- ***Pediatric and Youth Services***

Programs providing pediatric and youth services incorporate physical therapy, occupational therapy, speech therapy, behavior management, cognitive therapy, special education, psychological counseling, and recreational therapy. In addition to having created specific learning environments at the facility, cooperative agreements have been initiated with other school districts to integrate children with head injuries into regular classroom settings.

- ***Respiratory Programs***

New Medico provides extensive services related to mechanical ventilator management, artificial airway management, and respiratory therapy. Mechanical ventilator management includes regular monitoring, arterial blood gas testing, and ventilator alarm system mainteance. Many persons learn to use portable ventilators as they reach an appropriate level of functioning.

Division of Rehabilitation Services

Thousands of consumers who are of working age in Arkansas receive technology-related services through the Division of Rehabilitation Services (DRS). This state agency is directed toward helping persons with disabilities to fulfill their intellectual potential for employment through education and training so that they may become self-supporting and self sufficient. Specific services which are provided through this state agency include: (a) assessment; (b) education; (c) training; and (d) purchase of equipment. Interpreter services, note-taking services, reader services, telecommunications would also be included if a consumer is in need of such services. Technology services received by consumers through DRS are provided as a function of need.

Office of Disabled Student Services

Sponsored by the University of Arkansas at Fayetteville, this office plays an important role in providing equal access for university students to the administration, faculty, and all aspects of campus activity. Special services are available to all students having a certified disability, and may include such things as taped texts, readers, notetakers, special testing conditions, and priority registration. Tutoring is also provided to students having physical and learning disabilities.

Veterans Administration

Consumers who receive technology services through the Veterans Administration (VA) must be veterans of military service. Many departments exist within the VA, and technology services which are provided range from artificial limbs and related equipment to specific rehabilitation services, such as speech, physical and occupational therapy.

Other Agencies and Organizations

It should be remembered that there are many different groups in Arkansas that are providing different types of technology-related services. Many of these groups are involved primarily in funding and will be considered in the next goal section. To get information about existing technology service providers and funding opportunities, consumers should contact ARTIS and the various TACs in Arkansas.

☐ ***The evaluation process.*** Before consumers are provided with technology and related-services, an evaluation is usually conducted. An evaluation is a test, or examination, which is conducted by a professional. This might be a speech therapist, an occupational therapist, a physical therapist, a teacher, a vocational instructor, or a doctor. The evaluation should look at what the consumer can do in many different environments, such as the home, the school, the work setting, or other places.

The evaluation is important because it can help select technology that can be used by the consumer. It must be remembered from the previous discussion, that there are many different types of technology which may be available to meet the needs of a person with a disability. The results of the evaluation helps to identify what the consumer needs, and provides a reason for buying the technology. As an example, a speech pathologist may conduct an evaluation on a consumer and recommend that the person receive a special communication device. A doctor, or physical therapist may conduct an evaluation and recommend that a wheelchair be provided to the consumer. In each case, important information is made available that helps people to make decisions about what technology is required to meet the consumer's special needs.

☐ ***Factors in selecting appropriate technology.*** Once an evaluation is conducted to help determine what the consumer's technology needs are, people who are making decisions about what will be provided will have some information upon which to make such decisions. However, other information is also needed. A variety of factors must be given consideration in addition to the evaluation information. These factors can be categorized into two areas: *personal* and *technology* factors.

[Transparency #8 - Personal Factors in Selecting Appropriate Technology]

Personal Factors

- ***Consumer skills.*** It is critical to know what skills or abilities a consumer has before appropriate technology can be selected for them. A complete assessment of the persons's skills across many different areas, e.g., home and daily living activities, self-help, recreation, and work, is usually better than looking at skills in only one area. The reason for this is that some skills may be used in one area of the consumer's life, and not in others. If only one or a few areas of skills were assessed, important skills in areas not assessed might be overlooked.

Some technologies require much training, or certain physical and mental abilities, to learn to use them. For example, learning to use computers and other devices may call for special training provided by a teacher or vocational job coach. Other technologies are easy to use and can be learned in a short time. By honestly looking at what the consumer's skills are, it will be much easier to choose a technology that meets his or her special needs.

- ***Consumer needs.*** A need would be any task or activity that the person currently cannot perform that is required to be more independent, educationally or vocationally successful. Needs include such things as sitting without support, using one's hands to do certain tasks, dressing oneself, using a computer, or speaking words. It is important to know what a consumer's needs are because some technologies will call for certain skills that the consumer may or may not have. Meeting a consumer's current and future needs should be the primary purpose in selecting technology.

- ***Consumer preferences.*** All persons have likes for certain things, and when choosing technology these likes must be considered. For example, a consumer may like to use a manual wheelchair rather than a powered wheelchair. The consumer may want a small device that talks that doesn't call attention to itself rather than a large, difficult to carry device that would cause people to look at the consumer. How it looks, and whether the consumer feels comfortable using the device in public (and in private) are also important considerations in choosing technology. It must be understood that the consumer may have likes that may differ from those of other people who may be involved in making decisions about technology that the consumer will receive. These likes need to be considered during the planning process.

- ***Age and sex of the consumer.*** The sex and the age of the consumer may affect decisions about technologies that might be chosen for him or her. For example, if the consumer is a male, he probably would not want a device which talks by using a female voice; a girl would not want a device which talks by using a boy's voice. Also, a teenager would not desire a technology that was designed for young children.

- ***Environmental factors.*** If the consumer lives in a part of the state difficult to get to, thought should be given to how the technology will be repaired in as short a time as possible.

- ***Home and family activities.*** Persons involved in decision-making about what technology a consumer may receive must keep in mind the consumer's home setting and family activities with which the consumer may be involved. If the consumer lives in a mobile home, a large, powered wheelchair might not be the best technology for the consumer if doors are not wide enough to allow the chair to enter the home and participate in family activities. If the consumer wishes to attend church, consideration should be given to the demands that would be placed on others in the church setting for the consumer to participate, modifications in the church building that would be needed, and other considerations.

- ***Location of services.*** Since many technologies will be affected by transportation, consumers and others involved in technology decision-making must think about whether technology chosen for the consumer will allow him or her to use this transportation. For some consumers, getting about in the community using public buses will be important. Some kinds of technology, such as powered wheelchairs, will need space, wheelchair locks, and ramps on buses and other vehicles.

If the consumer is of school-age and has a technology that is needed for him or her to benefit from special education, the school is responsible for providing the necessary transportation. If changes are needed in buses or other vehicles to get the student to and from the school, these changes must be made to meet the student's needs. This would include the use of lifts, ramps, railings, and wheelchair locks. It would also include removing bus seats to make space for students in wheelchairs.

- ***Consumer goals.*** Once a consumer's skills and needs have been identified, goals may be developed which recognize the persons skills and needs. Technologies cannot be chosen to help a consumer attain his or her goals without understanding what the technology is supposed to do. How the device helps the consumer improve their living condition, their ability to complete important tasks, and their ability to be more independent are important goal considerations. If the technology does not help the consumer to achieve their goals, then a different technology should be purchased. If the consumer is working with an IEP committee, these goals *must be linked to the consumer's school aims*. If the consumer is working with an IHP committee, these goals *must be linked to the consumer's vocational, daily living, and recreational aims*.

Vocational goals are an important consideration for all persons. Getting ready for the world of work begins early in life, and technology should be chosen that will help the consumer obtain skills that will help him or her in later life. Persons involved in making decisions about technology that is appropriate for consumers should give careful thought to the job goals of each consumer, thinking about how these goals may be completed by using technology. During the planning process, an important question that decision-makers should ask is, *"Will this technology help or hinder the person's job opportunities?"*

[Transparency #9 - Technology Factors in Selecting Appropriate Devices and Services]

Technology Factors

- ***Range of technology.*** There are usually many types of technology designed to help consumers to meet needs at home, school, work and in other places. Before choosing any technology, all persons involved in decision-making should look at as many choices as possible and consider their usefulness. Then the features of the technology should be compared to the consumer's needs, skills, and the places in which the technology will be used.

- ***Real cost of the technology.*** The real cost of any technology may include things that consumers and others may not be aware of at the time a device is purchased. It is important to consider whether operating costs of the technology are included, as well as any costs related to maintenance, repair, assembly, and needed parts over time. Sometimes this information is not supplied by those persons who sell the technology. Consumers and others should be aware of these costs before buying any technology.

- ***Consumer ability to use the technology.*** Some devices are easy to learn to use while others need much skill, physical ability, training, or practice. The consumer and others should consider all that will be needed for a consumer to learn to use a device.

- ***Dependability of the technology.*** All consumers want the technology they get to be dependable. Does the device work the same way each time it is used? Does it only work like it's supposed to under some conditions? Are there special conditions that must be met for it to work? These questions are important in choosing technology. Some of these questions can be answered if consumers try the technology before buying it.

- ***Ability to move the technology.*** Since consumers often need technology which can be used in many places, how easily the device can be moved to and used in different places is important. When looking at a battery-powered device, for example, consumers should ask about how long the batteries will last under normal conditions. Also, the size and weight of the technology should be given thought if it will be used in many places. Some technologies may be very large or demand much space to be used, and can only be used in a few places, while others can be taken all places and used by the consumer.

- ***Lifespan of the technology.*** All consumers like to find good buys. Sometimes, these good buys are used by persons for a long time. How easily a device can be broken and whether it can serve the consumer over a long time are important considerations when choosing technology to meet the consumer's needs.

- ***Usefulness with other devices.*** Another important consideration when choosing some technologies is how easily they can be used with other devices. Some wheelchairs, for example, are designed so that other devices can be easily added on; other types of technology may not be so easily changed. Consumers should give thought to both their present and future needs in looking at the ability of the technology to be used with other devices. For example, a device which uses computer speech to talk for a young child may be limited to the use of 50 words. As the child grows older, and the number of words which he or she learns increases, the device should be able to be changed or used with other devices so that more words can be available.

- ***Trying the technology.*** All people like to try things before buying them. If you are buying a car, you would shop around at car lots to get prices and bargain on the sale price with dealers. If a consumer needs a wheelchair, he or she should be able to look at chairs sold by several dealers. Other persons involved in making decisions about technology that will be received by the consumer should be willing to examine several possible alternatives of technologies. Local sales people from companies which sell technology can be called and asked to bring the technology to the home or other setting and show how it works. Also, the consumer will be able to go to any of the technology access centers which will be set up in the state under the Arkansas Technology Access Program (ARTAP). At these centers, consumers can try out various devices that might help them.

- ***Day to day maintenance.*** This includes whether the consumer or others take care of all the things needed to keep the device working, be responsible for cleaning the technology, and do things such as oiling a wheel. Some technologies will need regular repairs and/or cleaning often while others may need to be worked on and cleaned only after a certain amount of time has passed or when it doesn't work properly.

- ***Safe from injury.*** Some technologies may cause injury to a consumer. If the technology is made of a material that is easily broken, the consumer and others should think about whether the broken parts might hurt the consumer if something should happen to the technology. Sharp edges on the technology can also cause injury to the consumer. Technologies which use electricity should be looked at to see if the consumer can be shocked when using the technology, or if it is not working properly. Other technologies are heavy and can cause injury if they happen to fall for some reason and hit the consumer. Finally, many technologies become soiled easily and can cause infections on the consumer if the technology is close to the skin.

- ***Protection from theft and damage.*** Many technologies that help consumers cost a lot of money. Because of this cost, consumers and others should think about how the person's technology will be safe from theft or damage. If a school, for example, buys the device, they sometimes want the technology to stay at the school and not be taken off school grounds. This is often a policy decision rather than a rule based on law. What consumers should ask is whether the device is covered by a school insurance policy against theft and damage. More than 1/3 of the schools in Arkansas are covered under a state insurance plan that fails to cover the monetary value of equipment in the event of theft or loss. Once the device leaves the school grounds, the consumer or parents may become responsible for the device if something should happen to it. Some schools in Arkansas, however, may have insurance policies that protects technology which is bought by the school and leaves the school grounds with the student. If something happens to the device, the insurance company would pay to have it fixed or buy a new technology.

Consumers who purchase technology that is not paid for by some outside agency, such as the public schools or the Division of Rehabilitation Services, should give thought to home owners or renters' insurance. Under these plans, a "rider" can be bought for a few dollars which would pay for a new technology if the consumer's device is damaged or stolen.

- ***Comfort of the technology.*** Depending on the design of the technology, some devices may be uncomfortable to use while others can be used with great ease and comfort. Other technologies can only be used for a short time before the consumer will become tired. For example, some consumers with physical disabilities may not be able to lift their arms or use their fingers to operate some technologies without discomfort. Similarly, a wheelchair that is too small or too large will also affect the comfort of the consumer. If the chair must be operated by hand and the consumer does not have good arm and shoulder strength, the consumer will tire from use of the chair quickly. In any of these cases, careful thought must be given to the physical demands placed on the consumer to operate or use the technology. Again, allowing the consumer to try the technology will be important to get information about the comfort of the technology.

Whether the technology *is likely to cause* physical harm, including bodily injury or infection, to the consumer is closely related to the concern of physical comfort. Consumers should give thought to how long the technology will be used and think about what bad effects, if any, it might have on the consumer.

- ***Ease of repair.*** Many technologies are made or sold by firms found far from where the consumer lives. When an agency or family buys technology, they must give thought to how the technology will be repaired. Parts for some technologies may not be in stock. This means it will take a long time for the firm to repair the technology. There may be a long waiting list for parts, or the firm may be in a region of the country which would lead to delays and expense in shipping the parts to the consumer.

The consumer and other decision-makers *must* consider where a technology will be repaired before buying it. An effort should be made to find local shops or companies that can repair damaged devices. Thought must also be given to whether replacement parts are easily found, whether the manufacturer must make repairs, and what type of warranty is available.

Because of the cost of having local shops or firms to repair technology, some consumers prefer to repair their own devices. If this is a consideration, the consumer must examine the technology giving careful thought to whether they or some other individual can repair the device if it breaks.

Activities

[Handout #6 - Cassandra and Handout #7 - John]

Activity 1. Ask the participants to break into small groups. Distribute copies of Handouts #6 and #7 to each participant and ask them to read the background information contained on the handout. As an alternative, a transparency may be used and the instructor may read the material to the group. Have the groups respond to the following questions. Examples of some possible answers are indicated **in bold type.**

[Handout #6 - Cassandra]

1. What are some of Cassandra's important technology needs in the home? at work?
[e.g., Home needs include closed captioning for the television which is available through KATV Channel 7, a telecommunication device for the deaf (TDD) for telephone usage, alarm clock with a flashing light. Work needs include interpreter services, computer with digital speech interface]

2. How would these needs most appropriately be determined? **[A comprehensive assessment of needs]**

3. What agencies might be appropriate contacts to provide technology needed in the above areas?
home needs: **[e.g.,Technology Access Center-Visual Impairments, Technology Center for Independence, Easter Seal Society, Division of Rehabilitation Services]**

work needs: **[e.g., Division of Rehabilitation Services, Technology Access Center-Visual Impairments, Technology Center for Independence]**

[Handout #7 - John]

1. What are some important concerns that persons should address in selecting appropriate technolology for John to meet his needs in the areas of:
a. getting about **[e.g., Explore possibility of a powered wheeelchair that could be used in home and school environment; Has anyone asked John if he wants to**

be more indepnendent? Does John have the physical capability of using a dowel stick to control a powered wheelchair? Is there a vendor in the region that could provide and maintain a powered chair that is modified to respond to a head controlled switch? Who would pay for a powered wheelchair for John]?

b. communicating his needs **[e.g., What are the options for augmentative communication devices that might meet John's needs? Of these options, what is the least expensive that would meet John's special needs? Would John like a device that uses speech? Are there people at school who can train John to use the device? How often does the device's battery need to be charged, and how much will it cost?]**

c. other areas **[e.g.,Computer for classroom and home use that would enable John to complete educational assignments; Environmental control systems in the home that would enable John to turn on lights, tv set, and manipulate other components of home setting; Velcro fasteners on clothing that would enable John to assist in dressing activities]**

[Transparency #10 - Goal 2 Group Discussion Questions]

Activity 2. Have participants break into small groups, and present them with the questions contained on Transparency #10. Ask the groups to discuss the questions. Have each group designate a spokesperson to present the responses of the group. After they have had a few minutes to discuss each question, ask the spokesperson for each group to summarize their discussions.

1. Why is the evaluation process so important in selecting appropriate technology for a person with a disability?
[e.g., The evaluation process involves testing in many different areas to fully grasp the range of needs that the person has; The process allows professionals to identify strengths that the person has which are helpful in deciding what technology can be operated by the person; The process allows the person with a disability to express his or her experiences with previous technologies and to indicate likes and dislikes]

2. Which service agency would most appropriately provide technology services to the following persons:

a. An elderly individual with significant independent living needs, and who has a history of military service [e.g., **VA, Technology Center for Independence, BRI Evaluation of Home Environment Program, Arkansas Technology Information System**]

b. A preschool-age child with cerebral palsy with needs for an assistive communication device [e.g., **Arkansas Easter Seal Society Early Intervention Program and Preschool, Augmentative Communication Services, and Communication Technology Access Center, Arkansas Technology Information System**]

c. A school-age child who needs an evaluation for a powered wheelchair [e.g., **Arkansas Children's Hospital Wheelchair Clinic, Arkansas Easter Seal Society Operation Outreach, Arkansas Technology Information System**]

d. A 32-year-old person with a spinal cord injury that was job-related who wishes to return to the work force [e.g., **Arkansas Division of Rehabilitation Services, BRI Spinal Cord Injury Program, Arkansas Technology Information System, Timber Ridge Community Re-Entry and Vocational Programs**]

e. A 19-year-old with a learning disability who wishes to attend a college or university [e.g., **College of the Ozarks Harvey and Bernice Jones Learning Center, University of Arkansas Disabled Student Services**]

Goal 3: To develop technology funding concepts.

3.1 *Objectives:*

During small group activities, consumers will:

- ❒ **identify major sources of funding for assistive technology, including:**
  - **public schools**
  - **Division of Rehabilitation Services**
  - **Children's Medical Services**
  - **EPSDT**
  - **Veterans Administration**
  - **Medicare**
  - **private insurance**
- ❒ **define appropriate terminology required by funding sources to secure needed assistive technology; and**
- ❒ **identify components relating to the assembling of support documents.**

3.2 Information Base

[Handout #8 - Funding Streams for Assistive Technology;
Handout # 9 - Definitions of Assistive Technology]

❒ ***Funding sources.*** One of the most important concerns for all consumers is funding for technology. Since technology needed to improve the quality of a consumer's lifemay be very expensive, assistance from outside sources to pay for technology is often necessary. There are a variety of resources for paying for technology in Arkansas. A description of these various funding sources is provided below. A handout of the sources is presented on Handout #8. Definitions for assistive technology used by the various funding sources are listed on Handout #9.

[Handout #8 - Funding Streams for Assistive Technology]

Public Schools

Schools are required to provide school-age students with disabilities a *free and appropriate public education*. This education must be provided in *the least restrictive environment*. These are important concepts are established under both state and federal laws. Technology is an important means of guaranteeing that students receive an appropriate education in the least restrictive environment.

There are two main laws through which the public schools may provide technology for students with disabilities. They include the following.

[Handout #9 - Definitions of Assistive Technology]

Education of the Handicapped Amendments of 1986 (P. L. 99-47 and P. L. 94-142). This legislation requires that an individualized education plan (IEP) be written for each child with a disability ages 3-21 years who can benefit from special education services. This plan is written by a team made up of professionals, the parents, and the student (when appropriate). Technology may be provided as a "related service". A related service includes such services as occupational, physical, speech therapy, and technology that can help the child to benefit from special education. It is important that the consumer understand that the technology will not be provided as a related service unless it can be shown to help him or her to benefit from special education.

P.L. 99-457 provides for the provision of early intervention services for infants and toddlers (0-3 years). As with P. L. 94-142, language is contained in the law allowing technology to be provided to young children through an individualized family service plan (IFSP) as an early intervention service. This may be through special instruction, speech pathology, audiology, occupational therapy, physical therapy, and health services.

Elementary and Secondary School Improvement Act of 1987 (P. L. 100-297). This law contains a section entitled Programs for Handicapped Children which allows schools to fund assistive technology programs as well as to purchase equipment that would be used to supplement special education and related services (such as occupational therapy, physical therapy, and speech and language services). The purchase of equipment and instructional materials and training in the use and provision of assistive devices and other specialized equipment are listed as possible services to be included in this program.

Division of Rehabilitation Services (DRS)

This state agency provides a range of technology-related services to consumers of working age. Funding for these services is established through a federal law which is described below.

The Rehabilitation Act Amendments of 1986 (P. L. 99-506). This law has four parts that directly affect the provision of technology services to children. These parts include: definition, state plan, evaluation, and individual rehabilitation plan.

Definition. The Act defines rehabilitation technology services as:

"the systematic application of technology, engineering methodologies, or scientific principles to meet needs of individuals with handicaps in areas which include education, rehabilitation, employment, transportation, independent living, and recreation".

State Plan. In order for Arkansas to receive funds under this Act, it must submit a state plan to the federal government for approval every four years, with annual revisions. Arkansas submitted its state plan in 1989. As part of the state plan, DRS described how rehabilitation technology services will be provided in the state.

Evaluation for Rehabilitation Services. Under the new law, when a child with a disability is evaluated for rehabilitation services, his/her potential to benefit from rehabilitation technology services must be assessed. The evaluation must be conducted by a person skilled in rehabilitation technology services to determine if the child could become successfully employed.

Individualized Written Rehabilitation Plan (IWRP). All persons receiving services from DRS receive an IWRP. Much like the IEP, it is the result of the evaluation which outlines a persons's vocational goals and objectives. It also describes the scope of vocational rehabilitation services that the individual will receive. When appropriate, a statement is included in the IWRP on how rehabilitation technology services will be used to help the person reach his or her vocational rehabilitation goals.Technology can be provided which includes work site modifications, training in the use of specific devices, and maintenance of assistive devices.

Children's Medical Services (CMS)

This agency provides specialized medical care and rehabilitation for children 0-17 years of age with physical disabilities whose families are unable to provide needed services. Technology may be provided to children as a treatment service, and may include physical and occupational therapy, appliances, and other needed services. The two primary sources of funding for technology used by CMS are described below.

Medicaid. Reauthorized under the *Social Security Act, Budget Reconciliation Act of 1986* (P. L. 99-509), the Medicaid program provides children with chronic disabilities who meet the federal Supplemental Security Income (SSI) test of disability, with medical assistance. In order for a device to be considered for Medicaid payment, it must meet the definition of a "prosthetic device".

Technology may also be funded if it qualifies as:

"Other diagnostic, screening, preventive, and rehabilitative services."

In Arkansas, devices typically purchased through Medicaid include canes, crutches, walkers, manual wheelchairs, manual hospital beds, and side rails for beds. Hearing aids and glasses are covered up until the age of 21.

Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA). The TEFRA program is an excellent source of funding for needed technology for children who qualify. TEFRA permits all children who are less than 18 years of age and who are at risk for long-term care placement to receive technology benefits. Children must have a disability according to the SSI definition and their resources must not exceed $2,000. The child's income must be less than $30. TEFRA is specifically designed to allow parents to keep a son or daughter at home rather than placing them in a nursing home or some other type of more restrictive setting.

Early and Periodic Screening, Diagnostic and Treatment (EPSDT)

Among the nine mandated services which all states participating in the federal Medicaid program must provide to Medicaid recipients up to the age of 21 years is the Early Periodic Screening, Diagnostic and Treatment (EPSDT) program. Effective April 1, 1990, the new provision outlined under P. L. 101-239, the Omnibus Budget Reconciliation Act of 1990, requires that States treat *any physical or mental problem* identified during such screening and assessment if such "treatment" is coverable under federal Medicaid law even if these treatments are not contained in the State's Medicaid plan.

This provision appears to assure the original Congressional intent of EPSDT which was to assure that all children who are poor have access to and obtain routine health care screenings, assessments and interventions to keep them healthy, and ameliorate any potential impact of a physical or developmental impairment.

Many states have been negligent in fulfilling this spirit and will now be compelled to do so. The implications of this provision for children who are Medicaid beneficiaries suggest that Medicaid coverage for physical therapy, occupational therapy, speech and language/audiology services, and specific assistive devices and equipment may now be provided through EPSDT.

Social Security Amendments of 1972 (P. L. 92-603); Plans for Achieving Self-Support (PASS)

A little known source of funding for persons with disabilities who are pursuing occupational goals or who are attempting to support themselves through work is the PASS provision of the Social Security Amendments of 1972. Although there is no PASS plan developed in Arkansas, other states have developed this funding alternative for persons with disabilities. Under the plan, persons may set aside part of their income for SSI benefits and use these funds to purchase assistive technology, job coaches, or other technology services.

Veterans Administration (VA)

The VA is one of the largest purchasers of assistive devices for persons with disabilities. Eligibility for services is very clearly specified in a manual available on request from the VA, and benefits are available to veterans and their dependents. A wide range of technology services may be secured from the VA, including aids for persons with blindness, eyeglasses, orthopedic braces, hearing aids, wheelchairs, artificial limbs, car/van adaptive aids, patient lifts, hospital beds, and other medical equipment.

Services are provided based upon each VA Medical Center's commitment to "prosthetic activity". Prosthetics is defined quite broadly by the VA, and includes various services related to selection and payment for technology:

> "[Prosthetics is] a broad term used to identify the total concept of the fields of prosthetics, orthotics, sensory aids, aids for the blind, medical equipment, medical supplies, components, and repairs. This term may be used to refer to prosthetic administration, research, education and training, appliances, services, and any other related aspects of the total program."

Using this very broad definition of prosthetics, technology which may be provided to persons who qualify for VA benefits may be either customized devices or commercial products. The ultimate responsibility for assessing a veteran's technology needs and determining what is most appropriate to meet those needs is the attending physician. Assessments are often conducted within a team framework.

The VA provides technology through four different mechanisms, depending on the equipment needed by the person with a disability.

On-contract equipment. This includes equipment used in large volume for which the VA has prenegotiated a contract with the manufacturer or contractor. Hearing aids are an example of a high volume technology that is prenegotiated.

Off-contract equipment. This includes equipment needed by the veteran with a disability that is not prenegotiated. Devices that would be included are modified products, devices which require ongoing service.

Customization. When equipment cannot be purchased to meet the needs of the veteran with a disability, devices may be customized by the VA. Special laboratories in the VA system design, fabricate, and custom fit braces, wheelchairs, and other special devices. They also repair artificial limbs, braces, wheelchairs, and other technologies.

Loan of devices. For major devices whch cost more than $4,000, the VA loans needed technologies to veterans. Such products include Kurzweil Reading Machines, Versa Brailles, Clinitron Beds, respirators, computers, stair glides, low effort steering/braking systems, and other devices.

The VA also has two specialty programs that handle payment for automobile adaptive equipment and home modifications. These services are treated as "benefits" rather than "prosthetics".

Medicare

This federal program is administered under the *Social Security Act, Budget Reconciliation Act of 1986* (P. L. 99-509). It is a federally managed medical insurance plan, regardless of income, for persons age 65 and older, and for persons under age 65 who are eligible for Social Security Disability Insurance (SSDI).

Medicare expenditures fall into two categories: hospital insurance (Part A) and supplementary medical insurance (Part B). Coverage under Part A pays for inpatient hospital care, skilled nursing facility care, and home health care. Part B coverage helps pay for physician services, outpatient care, hospital care, some short-term rehabilitation services, therapies, durable medical equipment, laboratory services, and other medical services and supplies.

In order for a service to qualify for Medicare payment, it must meet a 3-pronged test:

1. Is it a replacement of a body part or function?
2. Is it a medical necessity?
3. Is it of reasonable cost?

Although the term 'assistive technology devices' is not specifically used in this legislation, payment may be considered if it meets the definitional criteria test.

Private Insurance

[Note: These materials have been excerpted from: Hofmann, A. (1982). *The Many Faces of Funding*. Mill Valley, CA: Phonic Ear, Inc., pp. 13-14]

Private health insurance is a contract between a company and an insured policyholder. There are many companies in Arkansas through which insurance policies may be obtained, each having flexibility with regard to whether devices and equipment will be covered. What is important for parents to recognize is that policies issued by these companies are oriented toward *health care*, and *not* changes in the environment or rehabilitation. Services and devices which are directed more toward reducing the level of impairment of the child are typically covered more frequently under these policies.

There are four basic types of insurance: hospital, surgical, physician's expense, and major medical insurance. It is ususally under major medical expenses that technology can be provided as "other tmedical services and supplies". When the insurance company puts a policy together, it will draw on various standard packages and phrases. It is much like an automobile dealer who adds on extras, such as air conditioning, stereo radio, and leather interior. These extras are written into the bill-of-sale as an added cost. This is true of the insurance policy also; the policyholder buys a standard medical policy, but if extra coverage is needed, then additional terms (or a rider) are added.

As an example, suppose that an augmentative communication aid is a desirable device that the parents would like covered under the policy. In the standard package of 'covered charges' used by many insurance companies, the usual wording is *other therapeutic services and supplies*. If the parents wished to have the coverage expanded to include the communication device, the wording could be changed to read *other therapeutic and prosthetic services and supplies.* By specifically mentioning 'prosthetic services', this insurance company would be able to recognize the communication device, because by their reasoning, a 'prosthesis' is the replacement of an absent part by an artificial substitute. The parents should bear in mind that just because this would work with one insurance company, it does not necessarily mean it will be interpreted in the same way by others. The key is the "terms of the policy", and every application stands on its own based on the terms set out in the policy.

Act 303 of 1985 required all insurance groups in Arkansas to offer an option to policyholders for extended coverage for speech, language, and hearing disorders. Companies offer riders to policyholders that would cover these technologies, though this information may not be provided to parents of children with disabilities unless the question is asked, "Do you have a rider that covers loss or impairment of speech, language, or hearing?"

[Handout #10 - Funding Terminology]

☐ ***Funding terminology.*** In order to secure needed technology, parents must often work with teams of professionals from various agencies. Each agency, depending upon its funding source, may provide technology to children only if certain words, or terminology, is used in completing applications or forms requesting assistance. Parents must be aware of the terminology that has to be used to get devices. In the process of obtaining information from agencies and organizations which might fund technology, the parents should request copies of the criteria used to justify the purchase of a particular technology. Key concepts which should be remembered and phrases from the four major federal funding sources for assistive technology are noted below. Each of these funding sources has as a critical ingredient the development and implementation of individual program plans. [Note: These materials have been excerpted from several resources: Morris, M. W. (1990). *Assistive Technology Funding. A User Friendly Workbook.* (Developed in cooperation with the RESNA Technical Assistance Project and United Cerebral Palsy Association, Inc.). Washington, DC: RESNA Technical Assistance Project; and Hofmann, A. (1982). *The Many Faces of Funding.* Mill Valley, CA: Phonic Ear, Inc.]

- **Early Intervention**

  Concept: "specific early intervention services necessary to meet the unique needs of the child"

Phrases: "functional needs of child related to performance of self-help skills, adaptive behavior and play, and sensory, motor, and postural development"
"adaptation of the environment selection, design and use of assistive devices to promote the acquisition of functional skills"
"frequency, intensity, location, and method of delivery of services"
"case by case basis"

Type service plan: Individual Family Services Plan (IFSP)

- **Special Education**

Concept: "to benefit from special education"

Phrases: "the child needs the services to benefit from special education"
"any supplemental aid or service that would enable a child placed in a regular education environment"
"related services includes transportation and such develop mental, corrective, and other supportive services as are required to assist a handicapped child to benefit from special education"
"case by case basis"

Type service plan: Individual Education Plan (IEP)

- **Vocational Rehabilitation**

Concept: "employability; securing competitive employment"

Phrases: "rehabilitation technology services to render an individual with a disability employable"
"telecommunications, sensory and other technological aids and devices"
"case by case basis"

Type service plan: Individual Written Rehabilitation Plan (IWRP)

- **Medicaid**

  Concept: "reduction of physical or mental disability and restoration of the patient to his best possible functional level"

  Phrases: "prosthetic devices"
  "other ...preventative and rehabilitative services"

- **Medicare**

  Concept: "medical necessity prescribed by a physician"

  Phrases: "replacement of all or part of a body organ"
  "makes a meaningful contribution to the treatment of an illness or to improvement of a malformed body member"
  "durable medical equipment"
  "prosthetic devices"

- **Insurance Companies**

  Concept: "condition results from illness or accident; device must be prescribed by physician; must be one of covered charges of policy"

  Phrases: "other therapeutic and prosthetic services and supplies"
  "prosthesis to replace organ or limb"
  "improves condition of patient"

When the consumer or others submit documentation or a claim for funding, the preceding concepts and key phrases should be kept in mind. Those concepts and phrases that fit in the application should be used.

[Handout #11 - Assembling Supportive Documents]

❒ ***Assembling supportive documents.*** To be able to produce an effective supportive document, consumers need to know how to address the funding source requirements. The consumer and others may have to argue some of the stipulations; the consumer may have to do a little researching to address the specifications. Medicare, Medicaid, and Insurance policy definitions will be addressed below. [Note: These materials have been excerpted from: Hofmann, A. (1982). *The Many Faces of Funding*. Mill Valley, CA: Phonic Ear, Inc., pp. 30-31, 33-34]

Medicare

Medicare has a list of major classifications of covered services, supplies, and equipment. Either one or two of them could be applicable to a variety of technologies, including communication aids:

- Rental and purchase of durable medical equipment
- Prosthetic devices

If the consumer knows how Medicare defines these classifications, they can address them with a more positive approach.

Durable medical equipment (DME). DME is covered if it meets the definition of durable medical equipment and if it is "necessary and reasonable for the treatment of an illness or injury or to improve the functioning of a malformed body member".

Definition of "durable medical equipment":

1. Can withstand repeated use;
2. Primarily and customarily used to serve a medical purpose;
3. Generally is not useful to a person in the absence of illness or injury; and
4. Appropriate for use in the home.

Even if an item is not "primarily and customarily used to serve a *medical purpose*"(2), and/or "generally not useful in the absence of illness or injury" (3), it can still meet the definition of DME if it can be clearly shown that it *serves a therapeutic purpose* in the consumer's case.

Medical purpose may be determined by opinions of local medical organizations and specialists in the field of physical medicine and rehabilitation.

Definition of "medical necessity":

Evidence exists that the item is included in the physician's course of treatment and a physician is supervising its use.

Definition of "necessary":
Item can be expected to make a meaningful contribution to the treatment of illness or injury or to improvement of a malformed body member.

Definition of "reasonable" (the following are taken into account in determining reasonableness):

1. Is expense disproportionate to the therapeutic benefits?
2. Is the item more costly than an alternative?
3. Does the item serve the same purpose as equipment already available to the beneficiary?

[Note: If (2) above is true, Medicare will *only* pay the cost of the alternative]

Prosthetic device. If a device replaces all or part of an internal body organ or replaces all or part of the *function* of a permanently inoperative or malfunctioning internal body organ, it is a prosthetic device.

Insurance Companies

It can be said that even the insurance industry looks to Medicare for some of its guidelines. An agent for one of the major insurance carriers advised that the medical item must be able to pass three tests [Note: These materials have been excerpted from: Hofmann, A. (1982). *The Many Faces of Funding*. Mill Valley, CA: Phonic Ear, Inc.]

1. Condition of the patient must be a result of illness or accident
2. Must be prescribed by a physician
3. Must be one of the covered charges of the policy

Covered charges are spelled out in a policy with a general category "other therapeutic and prosthetic services and supplies". The test here is:

- The technology must be a prosthesis to replace an organ or limb
- The technology must be curative or improve the condition of the patient

Medicaid

Though the federal government provides from 50% to 80% of the costs of Medicaid programs, the States, except for certain basic services, may provide a number of other services *if they elect to do so*. Because of these variations in benefits offered, the Medicaid programs differ widely across the country. In Arkansas, relatively few technologies are covered by Medicaid. These include: ambulation aids (canes, crutches, walkers); mobility aids (manual wheelchairs); bedroom aids (manual hospital beds, side rails); and sensory aids (hearing aids and glasses up to age 21).

Greater flexibility to obtain funding for technology may exist under one of the specified services that all states participating in the program must provide--early periodic screening, diagnostic and testing (EPSDT). This is a program administered through the Department of Human Services, Division of Economic and Medical Services. All children from 0-21 years of age who enter this program must be treated for any physical or mental problem identified during the screening and assessment process. Through the EPSDT program, technology can be provided to a consumer if it can be demonstrated to be necessary to treat such problems, even if these treatments are not included in the state's Medicaid plan.

Whether the application for funding is directed toward Medicare, Medicaid, Vocational Rehabilitation, Insurance, the educational system, or other funding streams, *demonstration of need* is the same. The medical prescription, the assessment/evaluation, and other supportive documents by the teacher, family, and the consumer can benefit by focusing on the definitions of Medicare or Medicaid as they apply to the consumer. The law is subject to interpretation by the courts, professionals, legislators, and others. Therefore, the key is to know and understand the definitions and to write the supporting document accordingly.

Look back over the preceding definitions. Some of the terminology to keep in mind include:

- Medicare: Medical necessity; necessary
- Insurance: Improve condition of patient
- Medicaid: ...and restoration of the patient to his or her best functional level

There is no set style, and no fixed phrasing of paragraphs. When the physician, speech therapist, occupational therapist, physical therapist, teacher, or others provide a supportive document to include with the claim for funding, they should keep these justifications in mind and apply those that fit in with their profession and their application for the consumer.

Descriptive Literature

No matter what the extent of advertising or dissemination of information of aids for consumers with disabilities, there are still many persons in positions as claims adjustors who are unaware of product existence. Therefore, it is important to include with an application printed literature describing the product. In so doing, the consumer may:

- decrease denials because the agent is unaware of the product; and
- facilitate decision-making because the agent can see and read about the technology; he or she doesn't have to make inquiries or request literature.

Sample justification documents are presented in Handouts #12-#15.

[Handouts #12-#15 - Sample Justications]

Activities

Activity 1. Have the participants break into smaller groups. Give each group a copy of Handout #16 and ask them to read the background information. Alternatively the instructor may present the information by using a transparency and read the information to the entire group. Ask each group to select a spokesperson to present the group responses to the questions noted on the handout. Examples of some possible answers are indicated **in bold type.**

[Handout #16 - Bob]

1. What are some of the important contacts for potential funding for Bob's technology needs?

wheelchair: **[e.g., Medicaid, private insurance]**

augmentative communication device: **[e.g., Medicaid, private insurance]**

medical needs: **[e.g., Medicaid, private insurance]**

2. What are some important considerations that should be addressed in attempting to get funding through each of these sources? **[e.g., wheelchair: (Medicaid) Does Bob meet the SSI test of disability? Is a wheelchair a prosthetic device under the state's Medicaid definition? If not, does it qualify as other preventive or rehabilitation service?**

(Medicare) Will the wheelchair be used for inpatient or outpatient care? Is it considered durable medical equipment? Is it viewed to be other medical services?

Is it a replacement of a body part or function? Is it a medical necessity? Is it of reasonable cost?

(private insurance) **Is a wheelchair covered under Bob's insurance policy as other therapeutic services and supplies? Can a rider be attached to the policy to cover the cost of wheelchairs?**

augmentative communication device:
(Medicaid) **Can an augmentative communication device be funded under the state's menu of Medicaid services? Can it be considered a rehabilitation service?**
(Medicare) **Can the device be justified as a medical necessity? What is the cost and is it reasonable? Is the device a replacement for a body part or function?**

(private insurance) **What therapeutic services and supplies are covered under Bob's policy? Can the policy be reworded or expanded to include therapeutic and prosthetic services and supplies?**

medical needs:
(Medicaid) **Is Bob's condition a chronic disability? Are the services required preventive services?**

(Medicare) **Is Bob eligible for SSDI assistance? Will physician, laboratory, or hospital care services be needed?**

(private insurance) **What specific medical services are covered under Bob's private insurance plan? Would technology associated with treating his upper respiratory problem be covered?]**

[Transparency #11 - Goal 3 Group Discussion Questions]

Activity 2. Have the participants break into smaller groups. Give each group a copy of Transparency #11 or present the information using an overhead. Ask each group to select a spokesperson to present the group responses to the questions noted on the handout. After the groups have had adequate time to discuss the questions, ask selected groups to present their responses. Examples of some possible answers are indicated **in bold type.**

1. What is the major source of funding for assistive technology provided through the public schools? **[P.L. 94-142 and P.L. 99-457, the Education of the Handicapped**

Amendments of 1986] To be provided with assistive technology through the public schools, what is the key concept regarding the technology that must be agreed upon by the student's IEP committee? **[That the technology must enable the child to benefit from special education]**

2. What is the major source of funding for assistive technology provided through the Division of Rehabilitation Services (DRS)? **[P.L. 99-506, the Rehabilitation Act Amendments of 1986]** In order to receive assistive technology through DRS, what key concept must be emphasized in the individual's IWRP? **[That the technology will help the student reach his or her vocational rehabilitation goals]**

3. Assistive technology funded through Medicaid must meet a specific definition, or criteria. What is that criteria? **[It must be a "prosthetic device"]**

4. To qualify for assistance through the TEFRA program, what eligibility criteria must be met? **[The persons must be less than 18 years of age, be at-risk for long-term care placement, must have a disability according to SSI definition, resources must not exceed $2,000 and income less than $30]**

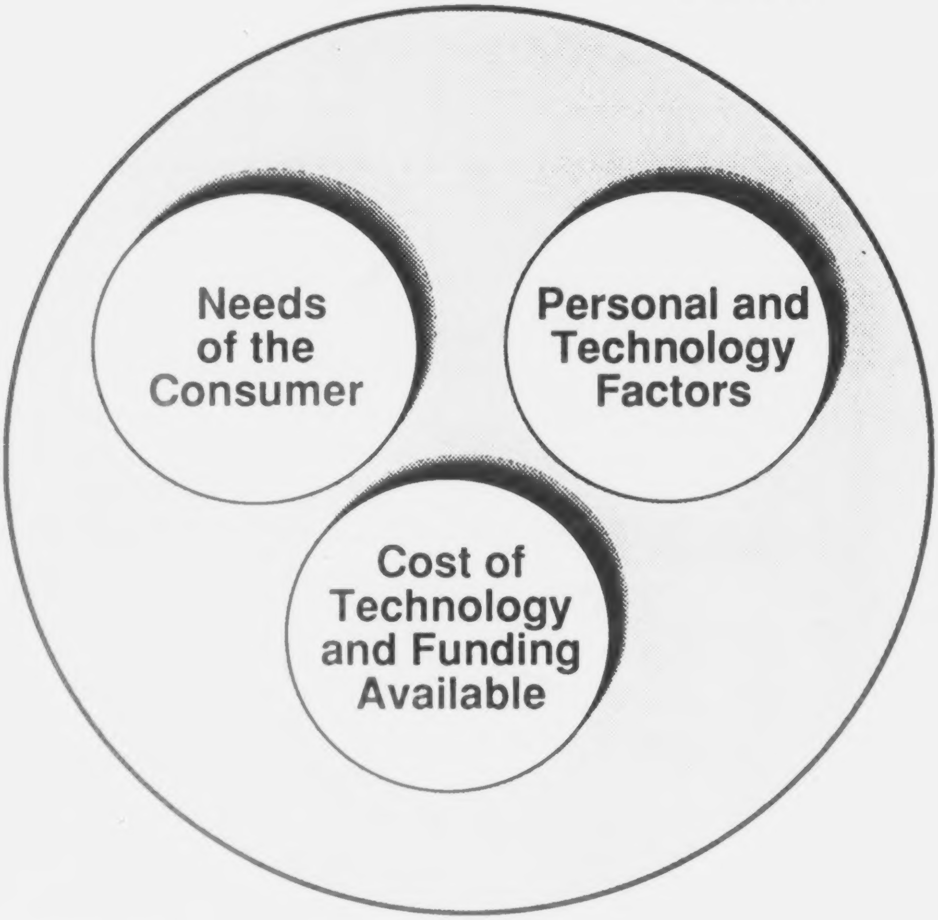
5. What are some of the technology services provided by the Veterans Adminsitration? **[e.g., Provision of technology through on-contract equipment, off-contract equipment, customization, and loan of devices; aids for persons withj blindness, eyeglasses, orthopedic braces, hearing aids, wheelchairs, artificial limbs, car/va adaptive aids, patient lifts, hospital beds]**

6. Assistive technology provided through Medicare must meet a three pronged test before payment will be made. What is this test? **[Is it a replacement of a body part or function? Is it a medical necessity? Is it of reasonable cost?]**

7. When private insurance is considered as a source of funding for assistive technology, under what category is it usually descibed in a consumer's policy? **[Under major medical expenses as other medical services and supplies"]** If the technology is not covered under this category, what strategy can be employed to see that it is covered? **[e.g., Ask the agent to expand the wording in this section of the policy to read "other therapeutic and prosthetic services and supplies"; Inquire about a rider to the policy]**

Considerations in Selecting Appropriate Technology

© UALR '90



Needs of the Consumer

Personal and Technology Factors

Cost of Technology and Funding Available

Steps in the Advocacy Process

© UALR '90

1. Understanding your rights
2. Letting professionals know about your needs
3. Keeping records
4. Follow-up

Rights of Consumers

© UALR '90

- Right to information about devices and services available
- Right to advocacy for needed technology and services
- Right to honest answers about evaluations, testing meetings, and any activities which might affect the person's ability to get needed technology and services
- Right to independence using technology
- Right to due process in getting needed technology and services
- Right to disagree with professionals who are involved in making decisions about technology and services that the persons can receive
- Right to have feelings about technology that is desired

Consumer Communication Skills

© UALR '90

- Keeping eye contact when speaking and listening
- Keeping good body posture when speaking
- Using facial expressions to make needs known
- Using hand and body gestures when proper
- Controlling the tone of voice while speaking

When You Are Told No

It is important to gain an understanding and appreciation of:

- **What the law and regulations require (to receive funds, a state must provide certain services and follow specific procedures)**

  Question to ask: *Is it state law?*

- **What choices a state may have as prescribed by law and regulations (a state selects from a menu of service options, and designates who will be eligible for services)**

  Question to ask: *Is it a state policy?*

- **What is not required by law or regulation, but has become a custom or practice in the state based on decisions made by the state lead agency**

  Question to ask: **Is it simply custom or** *local current practice?*

From: Morris, M. W. (1990). Assistive Technology Funding. A User Friendly Workbook. (Developed in cooperation with the RESNA Technical Assistance Project and the United Cerebral Palsy Association, Inc.). Washington, DC: RESNA Technical Assistance Project, p. 6.

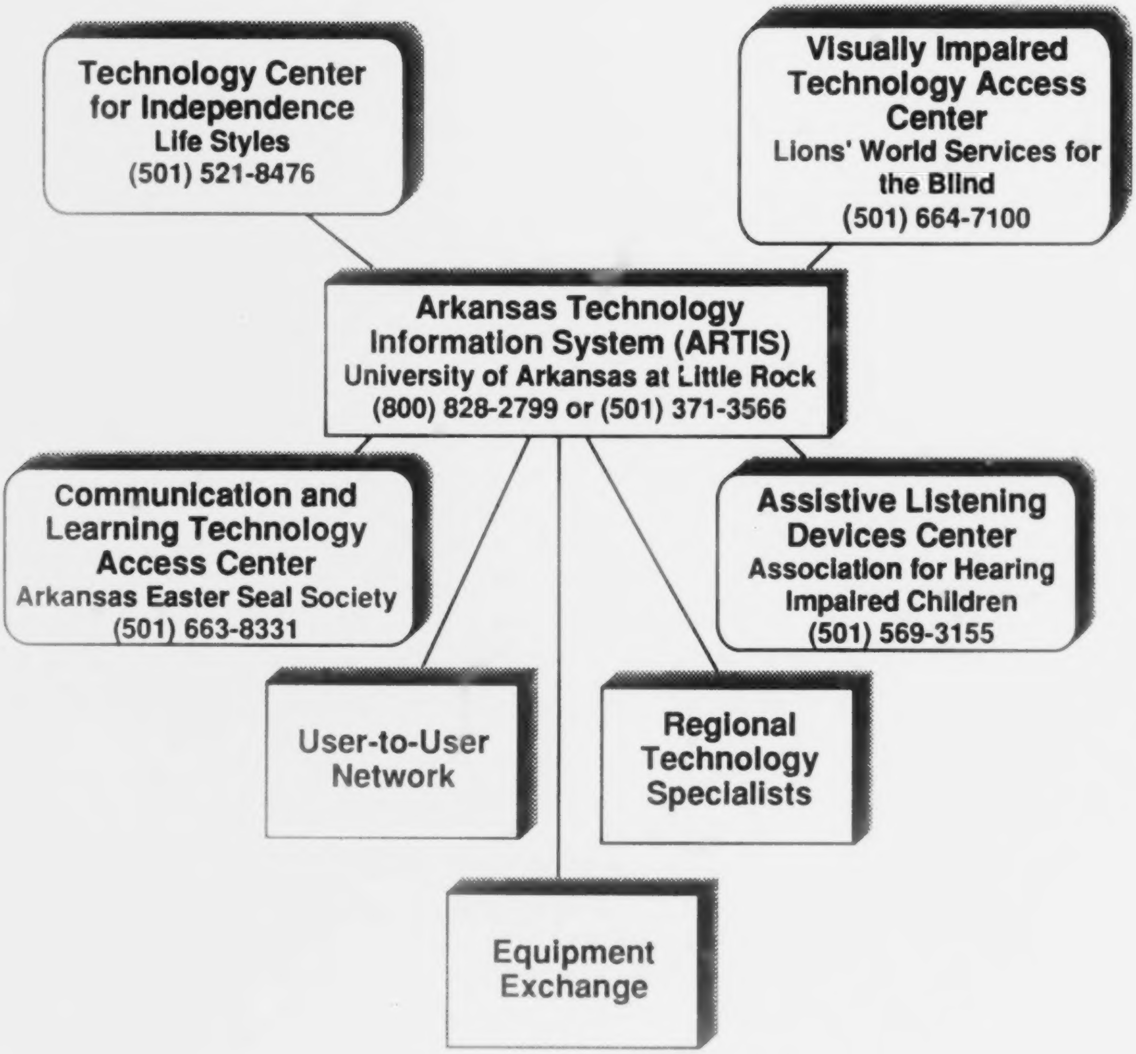
Goal 1 Group Discussion Questions

© UALR '90

- What is assistive technology?
- Can you make a list of 20 types of assistive technologies that might be used by persons with disabilities? by infants and young children? by school-age children? by persons in the work force? by the elderly?
- What are assistive technology services?
- How is consumer best defined?
- What are the three important components of appropriate technology for a person with a disability?
- What is advocacy for technology?
- What are the groups in your local community that might act as advocates for persons with disabilities?
- What are the steps in the advocacy process?

Arkansas Technology Access Program (ARTAP)

© UALR '90



Technology Center for Independence
Life Styles
(501) 521-8476

Visually Impaired Technology Access Center
Lions' World Services for the Blind
(501) 664-7100

Arkansas Technology Information System (ARTIS)
University of Arkansas at Little Rock
(800) 828-2799 or (501) 371-3566

Communication and Learning Technology Access Center
Arkansas Easter Seal Society
(501) 663-8331

Assistive Listening Devices Center
Association for Hearing Impaired Children
(501) 569-3155

User-to-User Network

Regional Technology Specialists

Equipment Exchange

Personal Factors in Selecting Appropriate Technology

© UALR '90

- Consumer skills
- Consumer needs
- Consumer preferences
- Age and sex of consumer
- Home and family activities
- Location of services
- Consumer goals

63

Technology Factors in Selecting Appropriate Devices and Equipment

© UALR '90

- Range of technology
- Real cost of the technology
- Consumer ability to use the technology
- Dependability of the technology
- Ability to move the technology
- Lifespan of the technology
- Usefulness with other devices
- Trying the technology
- Day to day maintenance
- Safe from injury
- Protection from theft and damage
- Comfort of the technology
- Ease of repair

Goal 2 Group Discussion Questions

© UALR '90

- Why is the evaluation process so important in selecting appropriate technology for a person with a disability?
- Which service agency would most appropriately provide technology services to the following persons:

  An elderly individual with significant independent living needs, and who has a history of military service

  A preschool-age child with cerebral palsy with needs for an assistive communication device

  A school-age child who needs an evaluation for a powered wheelchair

  A 32-year-old person with a spinal cord injury that was job-related who wishes to return to the work force

  A 19-year-old with a learning disability who wishes to attend a college or a university

Goal 3 Group Discussion Questions

© UALR '90

- What is the major source of funding for assistive technology provided through the public schools? To be provided with assistive technology through the public schools, what is the key concept regarding the technology that must be agreed upon by the student's IEP committee?
- What is the major source of funding for assistive technology provided through the Division of Rehabilitation Services (DRS)? In order to receive assistive technology through DRS, what key concept must be emphasized in the individual's IWRP?
- Assistive technology funded through Medicaid must meet a specific definition, or criteria. What is that criteria?
- To qualify for assistance through the TEFRA program, what eligibility criteria must be met?
- What are some of the technology services provided by the Veterans Administration?
- Assistive technology provided through Medicare must meet a three pronged test before payment will be made. What is this test?
- When private insurance is considered as a source of funding for assistive technology, under what category is it usually described in a consumer's policy? If the technology is not covered under this category, what strategy can be employed to see that it is covered?

Advocacy Contacts

Advocacy Services, Inc.
Suite 311, Medical Arts Building
1120 Marshall Street
Little Rock, AR 72202
☎ 1 (800) 482-1174 or (501) 371-2121

Arkansas Association for Hearing Impaired Students
P.O. Box 7630
Little Rock, AR 72217
☎ (501) 661-1444

Arkansas Association for Visually Impaired Students and Youth
P.O. Box 34021
Little Rock, AR 72201
☎ (501) 835-8548

Arkansas Association for the Deaf
9005 Lew Drive
Little Rock, AR 72209
☎ (501) 225-3949

Arkansas Easter Seal Society
P.O. Box 5418
Little Rock, AR 72225
☎ (501) 663-8331

Arkansas Division of Services for the Blind
411 Victory Street
Little Rock, AR 72203
☎ 1-(800) 482-5850, Ext. 2587 or
(501) 371-2587

Arkansas Disability Coalition
10002 West Markham, Suite B7
Little Rock, AR 72205
☎ (501) 221-1330

Arkansas Occupational Therapy Association
P.O. Box 22082
Little Rock, AR 72221

Arkansas Special Education Resource Center

1405 North Pierce, Suite 101
Little Rock, AR 72202
☎ (501) 663-3835

Arkansas Speech and Hearing Association

111 Center Street, Suite 1400
Little Rock, AR 72201
☎ (501) 374-7701

Association for Retarded Citizens/Arkansas

Union Station Square, Suite 412
Little Rock, AR 72201
☎ (501) 375-4464

Camp Aldersgate

2000 Aldersgate Road
Little Rock, AR 72205
☎ (501) 225-1444

CornerStone Project

4800 West 26th Street
Little Rock, AR 72204
☎ 1-800-359-5541 or (501) 664-0963

FOCUS, Inc.
2917 King Street, Suite C
Jonesboro, AR 72401
☎ (501) 935-2750

Independent Case Management
5917 "H" Street
Little Rock, AR 72205
☎ (501) 664-7254

National Federation for the Blind/Ark. Chapter
508 South Valentine
Little Rock, AR 72205
☎ (501) 666-2469

Northwest Arkansas Family Support Group
P.O. Box 697
Bentonville, AR 72712
☎ (501) 273-0338

Physical Therapy Association of Arkansas
1 Spring, #330
Little Rock, AR 72201
☎ (501) 378-7508

Post-Polio Support Group/SAILS Project
827 3rd Street
Hot Springs, AR 71913
☎ (501) 624-7710

Spina Bifida Association of Arkansas
2000 Aldersgate Road
Little Rock, AR 72205
☎ (501) 224-2300

Unified Community Resource Council
Arkansas Division of Volunteerism
Donaghey Plaza South
P.O. Box 1437
Little Rock, AR 72203
☎ 1-(800) 482-5850, Ext. 27540 or
(501) 628-7540

United Cerebral Palsy
10400 West 36th
Little Rock, AR 72205
☎ (501) 224-6067

Frequently Called Numbers

Agency/Group	Number

Sandy

Sandy is eligible for special education based on the fact that she is legally blind. Sandy's parents have noticed that she says words funny. She doesn't pronounce certain letters (l, r, s, t, th). She has done this since she first learned to talk. Federal and Arkansas law say that speech therapy may be provided as a related service. The parents know that related services are "those services needed in order for a student to benefit from special education". Also, they know that students should be evaluated in all areas of suspected disability. The parents are aware that IEP Committees determine services needed for students and that they may be convened when necessary.

Last month Sandy's family physician said that Sandy had not outgrown her speech problems and suggested that her parents look into speech therapy. The parents had a conversation with Sandy's teacher, who said that she had noticed Sandy's speech problem. She is becoming reluctant to talk in class because some of the classmates tease her about her speech. The parents have read an article about children's language development which said that most children outgrow speech problems by the age of five or six. If they don't, they should receive speech therapy.

What information is still needed by the parents?

What arguments can the parents present for getting speech therapy for Sandy?

Arguments made by the other party	Counterarguments
1. Sandy will outgrow her speech problem; therapy isn't needed.	1.
2. We haven't noticed any speech problem.	2.
3. We don't have staff available or money to provide the service.	3.
4. They'll make me try to feel guilty for asking for too much since Sandy already receives teacher consultation services and adaptive aids for her visual handicap.	4.

Harry

Harry is a 45 year-old employee of a local firm which publishes books for government agencies. Several years ago, Harry was involved in an accident on the job that left him paralyzed from the waist down. He uses a powered wheelchair to get around which was provided to him by the Division of Rehabilitation Services (DRS). One problem that Harry has to deal with every day at work is the lack of a bathroom that has a wide stall. This forces him to climb out of his chair to the floor and crawl to the commode each time he goes to the bathroom. Harry received job training through several programs at DRS and learned some basic computer skills. In his present job, Harry doesn't have a computer, but has to use a typewriter. His hearing is not very good which causes him to ask questions repeatedly when using the telephone. Sometimes, he is so frustrated that he doesn't ask questions and misses information that is given to him over the phone. This, in turn, seems to have affected his work productivity--something that Harry's boss has recently observed.

Harry has asked his boss to consider purchasing him a computer to assist him in his work activity. He notes that other people in the office have computers. Harry has also asked for a speakerphone for his telephone such that he can be sure and get all information that comes in over his telephone. The boss argues that there is not enough money to buy a computer, or a speakerphone. "Even if we did", he said, "if we bought special equipment for you, we'd have to buy it for everyone else in the office. Besides, your work productivity is slacking off and we may have to let you go soon anyway".

1. What violations of rights seem to be present in Harry's case?

2. What responses to the following arguments might be presented to help Harry get needed technology?

Argument	Response
a. We can't change the bathrooms in the building.	1.
b. You have to use a typewriter.	2.
c. We can't buy you a computer, or we'd have to buy everyone something special.	3.
d. A speakerphone wouldn't help you to be more productive.	4.

Most Common Excuses

Problem solving is an important strategy for persons desiring to use public and private funding options for the payment of assistive technology. Consumers will come in contact with persons who offer excuses why an agency cannot pay for needed technology. When this occurs, the consumer must be prepared to use advocacy skills and respond to the excuses that are offered by professionals. Some of the most frequent excuses that consumers will hear when attempting to get needed technology include the following:

- The law says we can't help you.
- We would like to provide you with funding, but we have limited rsources.
- We are a payer of last resort, so come back to us after you have exhausted all other resources.
- We don't agree these needs could be met by assistive technology.
- What you want costs too much! We have limits on what we can spend on a single client.
- You are not eligible for services from this agency.
- Although this kind of device would be optimum for your needs, we are not required to provide that level of service.
- Talk to your insurance company. That is who should assist you.
- We can put you on a mailing list.
- Our professional experts don't agree with your assessment of needs.

1. For each excuse, list three effective responses.

2. For each excuse, assume a child of school age with a disability is seeking the support of assistive technology. List an effective response for each excuse.

3. For each excuse, assume an adult with a disability is seeking assistive technology support. List an effective response for each excuse.

From: Morris, M. W. (1990). *Assistive Technology Funding. A User Friendly Workbook.* (Developed in cooperation with the RESNA Technical Assistance Project and United Cerebral Palsy Association, Inc.). Washington, DC: RESNA Technical Assistance Project, p. 14.

Technology Service Providers

Arkansas Technology Access Program (ARTAP)

ARTAP is a statewide system of technology-related assistance. It was created by a grant from the federal government and is sponsored by the Division of Rehabilitation Services. ARTAP is made up of several components, each of which provides persons with disabilities and their families with special types of technology-related services.

Basically, ARTAP is made up of a centralized technology information system, five technology access centers (TACs), an Equipment Exchange Program, a User-to-User network, and regional technology specialists. The various components of ARTAP are described below.

Arkansas Technology Information System (ARTIS). The University of Arkansas at Little Rock developed and will maintain ARTIS. This will be a consumer-responsive statewide system of information, storage, and retrieval enabling *all* Arkansans to get information about assistive devices and services. This system has a number of important goals which include making information available to all persons regarding technology and services, conducting training, marketing the system on a statewide basis, improving cooperation among agencies, developing a User-to-User network, creating a system of regional technology specialists to act as resource persons in local communities, and creating an equipment exchange program of used assistive devices. ARTIS will develop a publicly distributed database containing this information that will be accessible to all persons. The system will output information in print, large print, Braille, and auditorily.

Technology Access Centers (TACs). Five TACs have been developed as part of the ARTAP system, each providing specialized technology-related services in one of the following areas: visual impairments, hearing impairments, cognitive and language development, communication, and independent living. The TACs will serve persons *of all ages* and *all disabilities*. TACs will be designed to freely provide information and hands-on demonstration concerning targeted technology devices and approaches to consumers, parents, employers, business, and the general public. The TACs will also provide and participate in training activities concerning technology and awareness and provide technical assistance to consumers, professionals, and policy-makers. Additionally, TACs will provide formal evaluations/assessments and other services, such as therapy and device construction, for a fee. The TACs will maintain a record on a database of the technology information resources which it possesses, and this database will be shared with the ARTIS, other TACs, and persons across the state concerned with technology access. Each TAC will establish an advisory board with at least 60% representation by persons with disabilities and their families. A description of each of the TACs follows.

- ***Communication and Learning Technology Access Center***

The two TACs in Communication and Cognitive and Language Development were developed by and will be maintained by the Arkansas Easter Seal Society. The Communication TAC will focus on augmentative communication and related types of technologies for non-speaking persons, as well as access to computer equipment. The Cognitive and Language Development TAC will serve persons having learning disabilities, head injuries, and other types of learning and language problems. This TAC will provide information, demonstrations, and training on software for word processing, mathematics, and related technologies.

- ***Assistive Listening Devices Center***

The TAC for Deaf and Hearing Impaired was developed by and will be maintained by the Arkansas Association for Hearing Impaired Children (AAHIC). This TAC will provide information, hands-on experiences, training, and assessments in assistive devices for persons with hearing impairments. Examples of such technologies include signalling systems, telephone amplifiers, hearing aids, amplification systems, speech training aids, manual sign training computer programs, and telecaption equipment.

- ***Technology Center for Independence***

The TAC in Independent Living was developed by and will be maintained by Life Styles of Fayetteville. This TAC will focus on technologies that will assist *anyone with a disability* to function more successfully in the community. It will provide information, hands-on experiences, training, and assessments on assistive technologies concerned with home management, personal care, home modifications, architectural modifications, home health, and recreation.

- ***Technology Access Center-Visual Impairments***

Developed cooperatively by several agencies led by Lions' World Services for the Blind, this TAC will provide information, hands-on experiences, training, and assessments on assistive technologies for persons with visual impairments. Examples of these technologies include auditory and tactile time and temperature aids, talking file storage, electronic sensing devices, navigation aids, and tactile Braillers.

Arkansas Children's Hospital (ACH)

This private, non-profit institution is the only pediatric medical center in Arkansas, and is the seventh largest in the country. Though all departments and clinics are interrelated, there are several service components that have particular relevance to persons with disabilities 0-21 years of age who have disabilities.

• *Audiology Department*

The Audiology Department provides comprehensive audiological services with a strong emphasis upon infant assessments. Testing for hearing aids, prescriptions for assistive devices, and referrals to other service providers are principle activities.

• *Speech Pathology Services*

This diagnostic service component focuses specifically on evalautions and treatment of a variety of speech and related disorders. The department refers children with disabilities to other agencies that provide needed technology services. Pre-augmentative communication skill training is provided, as well as training in the use of adapted switches. Computer training is additionally given to a limited degree.

• *In-Patient Rehabilitation Clinic*

The Pediatric Habilitation Clinic provides comprehensive specialty medical services for children, adolescents, and young adults and their families with physical disabilities. Multidisciplinary evaluation and treatment is available, with a particular emphasis on assessments, referrals, and seating evaluations.

• *Habilitation Outpatient Clinics*

Services provided on an in-patient basis in the Habilitation Clinic are also provided to persons with disabilities on an outpatient basis.

• *Progressive Care Unit*

This is a highly specialized pediatric and adolescent acute rehabilitation unit offering all aspects of treatment serving persons in need of acute rehabilitation after trauma. It is also available to persons with a wide range of disabilities. Treatment is provided in a comprehensive and coordinated manner, including such services as evaluation and prescription of orthopedic devices and other equipment, physical and occupational therapy, and augmentative communication evaluation and prescription.

• *Rehabilitation (Occupational Therapy)*

The Occupational Therapy Department evaluates and treats children with physical disabilities, developmental delay, perceptual-motor problems, and oral motor difficulties. The primary services offered are seating evaluations (including modifications and fabrications), splinting, determining adaptive equipment needs, feeding, developmental training, and instructions in daily living. A computer play center has also been developed in cooperation with the Junior League of Little Rock. This center provides a variety of opportunities for children with physical disabilities to use computer technology.

Arkansas Easter Seal Society

This private organization provides a wide range of technology-related services to consumers with disabilities across the state.

Early Intervention Program and Preschool. This program provides assistance in equipment construction and loans adaptive equipment, loans adative toys, and provides computer training to children with disabilities 0-5 years of age. Physical and speech therapy is also provided.

Residential Center for Orthopedically Impaired Children. Children with physical and motor impairments referred from school districts can be provided with technology-related services at the residential center. The primary emphasis of training activities provided is computer usage and augmentative communication strategies. Occupational and speech therapy are also provided.

ArkansasTechnology Resource Center. This Center is a member of the National Special Education Alliance and provides a range of services to persons with disabilities through a variety of programs. These include the following:

• *Computer Evaluation Project*

This program is designed to evaluate the ability of vocational rehabilitation clients to use computers. Services also include development of alternative access strategies, training in the use of computers and referral to appropriate local, state, and national programs, agencies, and professionals.

• *Technology Access Centers*

Two specialized technology access centers (TACs) for technology-related services of the Arkansas Technology Access Program (ARTAP) are housed within the Arkansas Technology Resource Center. These include a TAC for communication and a TAC for language and cognitive impairments. A description of the types of services provided is noted in the previous description of ARTAP.

- ***IBM's Offering for Persons with Disabilities***

Hands-on experience in using IBM hardware and software programs for the computer are available to persons with disabilities. This program provides computer evaluations and prescriptions, and if the person wants to purchase an IBM, he or she may do so at discount prices.

- ***Augmentative Communication Services***

This program provides evaluation, training, and support services to children who are unable to speak. Training is also given to therapists and teachers in the use of augmentative communication strategies.

- ***Lending Library***

A library consisting of books, equipment, videos, and software is available to parents, persons with disabilities, and professionals.

- ***AppleLink***

Through the AppleLink system the Arkansas Technology Resource Center is electronically linked with other national technology centers, companies that sell technology, and other experts. Parents, persons with disabilities, and professionals may use this system to get quick responses to technology questions from people across the country.

Operation Outreach. Outreach is an evaluation and consultation service for students with orthopedic handicaps. It operates through a team consisting of an occupational therapist, speech/language pathologist, adaptive physical educator, and a special education teacher who travel to local school districts across the state on request. Technology support includes computer and augmentative communication training, as well as consultation in seating/positioning, self-help, and leisure equipment adaptations. Recommendations are also provided regarding how to develop technology-related programs.

Baptist Rehabilitation Institute (BRI)

This 192 bed facility is a comprehensive rehabilitation hospital, complete with the most modern inpatient and outpatient equipment available. A full range of individualized evaluation and services is offered to persons with disabilities. After an initial evaluation, an individualized program is designed for each patient. Components of the program may include physical therapy, occupational therapy, psychology, rehabilitation nursing, therapeutic recreation, respiratory therapy, medical social work, orthotics, prosthetics, and speech/language pathology.

Programs which directly relate to technology that are offered through BRI include the following.

- ***Amputee Program***

Professionals work with persons having upper extremity amputations in the use of their myoelectric prostheses, provide positioning equipment for positioning persons having lower extremity amputations, and provide adaptive equipment to meet individual patient needs/goals.

- ***Arthritis Program***

BRI staff fabricate splints to correct or prevent deformities in patients. They also develop adaptive devices for persons with disabilities necessary for grooming, toileting, household tasks, and meal preparation.

- ***Burn Injury***

Professional staff participate in the development of splints, and develop silicone elastomer inserts to decrease scarring for burn victims.

- ***Chronic Obstructive Pulmonary Disease***

Staff provide adaptive equipment focusing on home management and activities of daily living for persons with disabilities.

- ***Chronic Pain Management***

In this program, each person's pain is assessed and a multi-facted treatment program is devised, aimed at increasing functional abilities and decreasing discomfort. Treatment may include relaxation training, rehabilitative exercise, psychological counseling, vocational counseling or medication management.

- ***Head/Brain Injury Program***

Special services offered to persons recovering from head/brain injuries include self-care and individual exercise training, speech/language pathology retraining, community re-entry training, vocational rehabilitation, adapted driver training, and wheelchair mobility and therapeutic recreation.

- ***Neuromuscular Disease***

This program emphasizes the development of communication devices for persons with severe impairments. BRI staff work with environmental control units to assist persons with disabilities to achieve independence in daily living activities. They also provide seating equipment and modifications to properly position persons in wheelchairs.

- ***Orthopedic Problems and Joint Replacement Rehabilitation***

The provision of adaptive equipment for home management and activities of daily living is a primary technology-related activity in this program.

- ***Spinal Cord Injury***

This program offers services from inpatient rehabilitation through community re-entry. Specific components of the program include self-care and individual exercise, an educational program that addresses specific issues and concerns for persons with spinal injuries, community re-entry training, vocational rehabilitation services, adapted driver education, wheelchair mobility training, and therapeutic recreation.

- ***Stroke Program***

Special services offered to persons recovering from strokes include the same components as that in the head/brain injury program.

College of the Ozarks

The Harvey and Bernice Jones Learning Center at this institution of higher learning houses the Ben D. Caudle Learning Program, the first of its kind in the world. The Learning Center is specifically designed to help college-age students with specific learning disabilities such as dyslexia, dysgraphia, dysorthographia, and dyscalculia. The introduction of a "learning strategies" program within the Center's curricula provides the opportunity for students to learn to become independent in reading and writing skills. Thus, they do not just use technologies (e.g., taped books and lectures), but are taught specific learning skills which will generalize so that the student can participate more fully in all aspects of college life and be more salable in the job market. Diagnostic testing and intensive support services are provided to all students designed to meet each person's special needs. These support services include: extended time testing using dictation or computer technologies; textbook taping; typing services; and computerized study skills modules covering such areas as time management, and notetaking.

New Medico Rehabilitation Center at Timber Ridge Ranch

This is a residential facility offering post-acute rehabilitation services to persons who have sustained brain injuries. Services are directed toward optimizing each person's functional skills in the areas of communication, cognition, behavior and emotional control, physical functioning, and vocational competitiveness. Specific services which are offered that relate to technology include the following.

- ***Coma Intervention***

Through New Medico's coma intervention services, patients receive a regimen of sensory stimulation from an interdisciplinary team of head injury specialists.

- ***Community Re-Entry and Vocational Programs***

This program offers persons with disabilities intensive life skills training that is critical for independence, with an emphasis on self-care activities of daily living, cognitive and communication skills, social skills, and physical mobility. The vocational program provides vocational assessment, prevocational training, and job skills training. It is designed to develop job placements through a supported employment model and community living options.

- ***Assessment***

In addition to the ongoing assessment that is central to all programs offered at the center, a short-term assessment is available to persons not involved in a full rehabilitation program. Each person's abilities and potential for growth are assessed by a variety of specialists under the direction of a neuropsychologist.

- ***Supervised and Independent Living Services***

Long-term and short-term residential options are available to persons with disabilities. Specially equipped apartments, townhouses, and group homes are located in both suburban and metropolitan neighborhoods, as well as on the grounds of the facilities. Supervision and assistance are provided by personal care attendants available around-the-clock or as needed. Support services are also available to those persons living on their own and therapy may be provided in the residence if needed.

- ***Day Treatment/Outpatient Services***

For persons with disabilities who are living on their own but who have specific rehabilitative needs, this program offers individual outpatient services as well as full day treatment programs.

- ***Pediatric and Youth Services***

Programs providing pediatric and youth services incorporate physical therapy, occupational therapy, speech therapy, behavior management, cognitive therapy, special education, psychological counseling, and recreational therapy. In addition to having created specific learning environments at the facility, cooperative agreements have been initiated with other school districts to integrate children with head injuries into regular classroom settings.

- ***Respiratory Programs***

New Medico provides extensive services related to mechanical ventilator management, artificial airway management, and respiratory therapy. Mechanical ventilator management includes regular monitoring, arterial blood gas testing, and ventilator alarm system mainteance. Many persons learn to use portable ventilators as they reach an appropriate level of functioning.

Division of Rehabilitation Services

Thousands of consumers who are of working age in Arkansas receive technology-related services through the Division of Rehabilitation Services (DRS). This state agency is directed toward helping persons with disabilities to fulfill their intellectual potential for employment through education and training so that they may become self-supporting and self sufficient. Specific services which are provided through this state agency include: (a) assessment; (b) education; (c) training; and (d) purchase of equipment. Interpreter services, note-taking services, reader services, telecommunications would also be included if a consumer is in need of such services. Technology services received by consumers through DRS are provided as a function of need.

Office of Disabled Student Services

Sponsored by the University of Arkansas at Fayetteville, this office plays an important role in providing equal access for university students to the administration, faculty, and all aspects of campus activity. Special services are available to all students having a certified disability, and may include such things as taped texts, readers, notetakers, special testing conditions, and priority registration. Tutoring is also provided to students having physical and learning disabilities.

Veterans Administration

Consumers who receive technology services through the Veterans Administration (VA) must be veterans of military service. Many departments exist within the VA, and technology services which are provided range from artificial limbs and related equipment to specific rehabilitation services, such as speech, physical and occupational therapy.

Other Agencies and Organizations

It should be remembered that there are many different groups in Arkansas which are providing different types of technology-related services to consumers. Many of these groups are involved primarily in funding and will be considered in the next goal section. To get information about existing technology service providers and funding opportunities, consumers should contact ARTIS and the various TACs in Arkansas.

Cassandra

Cassandra is a 27-year-old woman with a severe hearing loss. Having been educated at the Arkansas School for the Deaf during her younger years, she is able to communicate with others using manual sign language. She lives with her parents who make a modest income and are unable to provide Cassandra with many technologies which might be appropriate for her. Cassandra has average intelligence and is capable of learning new skills relatively quickly. She has worked as a production worker at a local plant which manufactures electronic parts, but was laid off because of the plant administration's resistance to providing an interpreter for her to interact with her fellow workers. Cassandra also has typing skills which she learned when she was younger. Recently, Cassandra has learned that there are a number of technologies that might assist her in getting a job as an office worker. Similarly, she knows that there are many things that could help her at home. For example, her parents have to wake her up because she cannot hear an alarm clock. She also can't watch television or answer a telephone because of her hearing impairment.

1. What are some of Cassandra's important technology needs in the home? at work?
2. How would these needs most appropriately be determined?
3. What agencies might be appropriate contacts to provide technology needed in the above areas?

home needs:

work needs:

John

John is a 16-year-old with spastic cerebral palsy. He has a manual wheelchair and relies on others to successfully complete most of his daily living activities. He does have good range of motion in his neck, and is able to turn his head left, right, and up/down. He is able to grip objects with his teeth, and can understand speech appropriate for a 11-12 year-old. His use of speech is limited and he has, until this point in time, relied on a communication board that uses letters of the alphabet. John lives at home with his parents. Their residence is a small wood frame dwelling with no modifications having been made to the structure of the home with the exception of a ramp for John's wheelchair. The ramp is located on the front porch. John attends a special education classroom at the local school, which unfortunately fails to meet many of his unique needs. However, the teacher seems to be very interested in helping John's family identify technology that could more appropriately meet his needs. One of John's parents frequently expressed concerns is that he needs to become more independent, particularly in the area of getting about in the environment and in expressing his needs.

1. What are some important concerns that persons should address in selecting appropriate technolology for John to meet his needs in the areas of:

    a. getting about

    b. communicating his needs

    c. other areas

Funding Streams for Assistive Technology

Public Schools

Schools are required to provide school-age students with disabilities a *free and appropriate public education.* This education must be provided in *the least restrictive environment.* These are important concepts are established under both state and federal laws. Technology is an important means of guaranteeing that students receive an appropriate education in the least restrictive environment.

There are two main laws through which the public schools may provide technology for students with disabilities. They include the following.

Education of the Handicapped Amendments of 1986 (P. L. 99-47 and P. L. 94-142). This legislation requires that an individualized education plan (IEP) be written for each child with a disability ages 3-21 years who can benefit from special education services. This plan is written by a team made up of professionals, the parents, and the student (when appropriate). Technology may be provided as a "related service". A related service includes such services as occupational, physical, speech therapy, and technology that can help the child to benefit from special education. It is important that the consumer understand that the technology will not be provided as a related service unless it can be shown to help him or her to benefit from special education.

P.L. 99-457 provides for the provision of early intervention services for infants and toddlers (0-3 years). As with P. L. 94-142, language is contained in the law allowing technology to be provided to young children through an individualized family service plan (IFSP) as an early intervention service. This may be through special instruction, speech pathology, audiology, occupational therapy, physical therapy, and health services.

Elementary and Secondary School Improvement Act of 1987 (P. L. 100-297). This law contains a section entitled Programs for Handicapped Children which allows schools to fund assistive technology programs as well as to purchase equipment that would be used to supplement special education and related services (such as occupational therapy, physical therapy, and speech and language services). The purchase of equipment and instructional materials and training in the use and provision of assistive devices and other specialized equipment are listed as possible services to be included in this program.

Division of Rehabilitation Services (DRS)

This state agency provides a range of technology-related services to consumers of working age. Funding for these services is established through a federal law which is described below.

The Rehabilitation Act Amendments of 1986 (P. L. 99-506). This law has four parts that directly affect the provision of technology services to consumers. These parts include: definition, state plan, evaluation, and individual rehabilitation plan.

Definition. The Act defines rehabilitation technology services as:

"the systematic application of technology, engineering methodologies, or scientific principles to meet needs of individulas with handicaps in areas which include education, rehabilitation, employment, transportation, independent living, and recreation".

State Plan. In order for Arkansas to receive funds under this Act, it must submit a state plan to the federal government for approval every four years, with annual revisions. Arkansas submitted its state plan in 1989. As part of the state plan, DRS is required to describe how rehabilitation technology services will be provided across the state.

Evaluation for Rehabilitation Services. Under the new law, when a consumer is evaluated for rehabilitation services, his/her potential to benefit from rehabilitation technology services must be assessed. The evaluation must be conducted by a person skilled in rehabilitation technology services to determine if a consumer could become successfully employed.

Individualized Written Rehabilitation Plan (IWRP). All consumers receiving services from DRS receive an IWRP. Much like the IEP, it is the result of the evaluation which outlines a consumer's vocational goals and objectives. It also describes the scope of vocational rehabilitation services that the consumer will receive. When appropriate, a statement is included in the IWRP on how rehabilitation technology services will be used to help the consumer reach his or her vocational rehabilitation goals.Technology can be provided which includes work site modifications, training in the use of specific devices, and maintenance of assistive devices.

Children's Medical Services (CMS)

This state agency provides specialized medical care and rehabilitation for children 0-17 years of age who have with physical disabilities and whose families are partially or totally unable to provide needed services. Technology may be provided to consumers as a treatment service, and may include physical and occupational therapy, appliances, and other needed services. The two primary sources of funding for technology used by CMS are described below.

Medicaid. Reauthorized under the Social Security Act, Budget Reconciliation Act of 1986 (P. L. 99-509), the Medicaid program provides consumers with chronic disabilities who meet the federal Supplemental Security Income (SSI) test of disability, with medical assistance. In order for a device to be considered for Medicaid payment, it must meet the definition of a "prosthetic device". A prosthetic device is defined in the following manner:

> "the systematic application of technology, engineering methodologies, or scientific principles to meet needs of individuals with handicaps in areas which include education, rehabilitation, employment, transportation, independent living, and recreation".

Technology may also be funded if it qualifies as:

> Other diagnostic, screening, preventive, and rehabilitative services.

In Arkansas, devices typically purchased through Medicaid include canes, crutches, walkers, manual wheelchairs, manual hospital beds, and side rails for beds. Hearing aids and glasses are covered up until the age of 21.

Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA). The TEFRA program is an excellent source of funding for needed technology for consumers who qualify. TEFRA permits all consumers who are less than 18 years of age and who are at risk for long-term care placement to receive technology benefits. Consumers must have a disability according to the SSI definition and their resources must not exceed $2,000. The consumer's income must be less than $30. TEFRA is specifically designed to allow parents to keep a son or daughter at home rather than placing them in a nursing home or some other type of more restrictive setting.

Early and Periodic Screening, Diagnostic and Treatment (EPSDT)

Among the nine mandated services which all states participating in the federal Medicaid program must provide to Medicaid recipients up to the age of 21 years is the Early Periodic Screening, Diagnostic and Treatment (EPSDT) program. Effective April 1, 1990, the new provision outlined under P. L. 101-239, the Omnibus Budget Reconciliation Act of 1990, requires that States treat *any physical or mental problem* identified during such screening and assessment if such "treatment" is coverable under federal Medicaid law even if these treatments are not contained in the State's Medicaid plan.

This provision appears to assure the original Congressional intent of EPSDT which was to assure that all children who are poor have access to and obtain routine health care screenings, assessments and interventions to keep them healthy, and ameliorate any potential impact of a physical or developmental impairment.

Many states have been negligent in fulfilling this spirit and will now be compelled to do so. The implications of this provision for children who are Medicaid beneficiaries suggest that Medicaid coverage for physical therapy, occupational therapy, speech and language/audiology services, and specific assistive devices and equipment may now be provided through EPSDT.

Social Security Amendments of 1972 (P. L. 92-603); Plans for Achieving Self-Support (PASS)

A little known source of funding for persons with disabilities who are pursuing occupational goals or who are attempting to support themselves through work is the PASS provision of the Social Security Amendments of 1972. Although there is no PASS plan developed in Arkansas, other states have developed this funding alternative for persons with disabilities. Under the plan, persons may set aside part of their income for SSI benefits and use these funds to purchase assistive technology, job coaches, or other technology services.

Veterans Administration (VA)

The VA is one of the largest purchasers of assistive devices for consumers with disabilities. Eligibility for services is very clearly specified in a manual available on request from the VA, and benefits are available to veterans and their dependents. A wide range of technology services may be secured from the VA, including aids for persons with blindness, eyeglasses, orthopedic braces, hearing aids, wheelchairs, artificial limbs, car/van adaptive aids, patient lifts, hospital beds, and other medical equipment.

Services are provided based upon each VA Medical Center's commitment to "prosthetic activity". Prosthetics is defined quite broadly by the VA, and includes various services related to selection and payment for technology:

> [Prosthetics is] a broad term used to identify the total concept of the fields of prosthetics, orthotics, sensory aids, aids for the blind, medical equipment, medical supplies, components, and repairs. This term may be used to refer to prosthetic administration, research, education and training, appliances, services, and any other related aspects of the total program.

Using this very broad definition of prosthetics, technology which may be provided to consumers who qualify for VA benefits may be either customized devices or commercial products. The ultimate responsibility for assessing a veteran's technology needs and determining what is most appropriate to meet those needs is the attending physician. Assessments are often conducted within a team framework.

The VA provides technology through four different mechanisms, depending on the equipment needed by the consumer.

On-contract equipment. This includes equipment used in large volume for which the VA has prenegotiated a contract with the manufacturer or contractor. Hearing aids are an example of a high volume technology that is prenegotiated.

. ***Off-contract equipment.*** This includes equipment needed by the veteran consumer that is not prenegotiated. Devices that would be included are modified products, devices which require ongoing service.

Customization. When equipment cannot be purchased to meet the needs of the veteran consumer, devices may be customized by the VA. Special laboratories in the VA system design, fabricate, and custom fit braces, wheelchairs, and other special devices. They also repair artificial limbs, braces, wheelchairs, and other technologies.

Loan of devices. For major devices whch cost more than $4,000, the VA loans needed technologies to veterans. Such products include Kurzweil Reading Machines, Versa Brailles, Clinitron Beds, respirators, computers, stair glides, low effort steering/braking systems, and other devices.

The VA also has two specialty programs that handle payment for automobile adaptive equipment and home modifications. These services are treated as "benefits" rather than "prosthetics".

Medicare

This federal program is administered under the *Social Security Act, Budget Reconciliation Act of 1986* (P. L. 99-509). It is a federally managed medical insurance plan, regardless of income, for consumers age 65 and older, and for consumers under age 65 who are eligible for Social Security Disability Insurance (SSDI).

Medicare expenditures fall into two categories: hospital insurance (Part A) and supplementary medical insurance (Part B). Coverage under Part A pays for inpatient hospital care, skilled nursing facility care, and home health care. Part B coverage helps pay for physician services, outpatient care, hospital care, some short-term rehabilitation services, therapies, durable medical equipment, laboratory services, and other medical services and supplies.

In order for a service to qualify for Medicare payment, it must meet a 3-pronged test:

1. Is it a replacement of a body part or function?
2. Is it a medical necessity?
3. Is it of reasonable cost?

Although the term 'assistive technology devices' is not specifically used in this legislation, payment may be considered if it meets the definitional criteria test.

Private Insurance

Private health insurance is a contract between a company and an insured policyholder. There are many companies in Arkansas through which insurance policies may be obtained, each having flexibility with regard to whether devices and equipment will be covered. What is important for consumers to recognize is that policies issued by these companies are oriented toward *health care*, and *not* changes in the environment or rehabilitation. Services and devices which are directed more toward reducing the level of impairment of the consumer are typically covered more frequently under these policies.

There are four basic types of insurance: hospital, surgical, physician's expense, and major medical insurance. It is ususally under major medical expenses that technology can be provided as "other medical services and supplies". When the insurance company puts a policy together, it will draw on various standard packages and phrases. It is much like an automobile dealer who adds on extras, such as air conditioning, stereo radio, and leather interior. These extras are written into the bill-of-sale as an added cost. This is true of the insurance policy also; the policyholder buys a standard medical policy, but if extra coverage is needed, then additional terms (or a rider) are added.

As an example, let us suppose that an augmentative communication aid is a desirable device that the consumer would like covered under the policy. In the standard package of 'covered charges' used by many insurance companies, the usual wording is *other therapeutic services and supplies.* If the consumer wished to have the coverage expanded to include the communication device, the wording could be changed to read *other therapeutic and prosthetic services and supplies.* By specifically mentioning 'prosthetic services', this insurance company would be able to recognize the communication device, because by their reasoning, a 'prosthesis' is the replacement of an absent part by an artificial substitute. The consumer should bear in mind that just because this would work with one insurance company, it does not necessarily mean it will be interpreted in the same way by others.

Act 303 of 1985 required insurance groups in Arkansas to be offered an option to take extended coverage for speech, language, and hearing disorders. Companies who have chosen to participate offer riders to policyholders that would cover these technologies. Consumers should ask their insurance companies if they participate in this coverage option.

Definitions of Assistive Technology

The Education of the Handicapped Amendments of 1986 (P.L. 94-142; P. L. 99-457)
"related services" defined as:

"...transportation and such developmental, corrective, and other supportive services as are required to assist a handicapped child to benefit from special education..."

P. L. 99-457, Part H provides for the provision of "early intervention services" for infants and toddlers birth to age two years. These early intervention services are those services necessary to meet the unique needs of the child and the family to achieve the outcomes identified in an individualized family service plan (IFSP). Though the provision of assistive technology is stated in the area of audiology as a potential early intervention service, the term is most broadly defined under occupational therapy as an early intervention service. Specifically, occupational therapy includes "adaptation of the environment, and selection, design and fabrication of assistive and orthotic devices to facilitate development and promote the acquisition of functional skills" Less specific language which could potentially allow for the provision of assistive technology is found in the areas of special instructional strategies, speech pathology, physical therapy, and health services.

The Rehabilitation Act Amendments of 1986 (P. L. 99-506)
"rehabilitation technology services "defined as:

"the systematic application of technology, engineering methodologies, or scientific principles to meet needs of individulas with handicaps in areas which include education, rehabilitation, employment, transportation, independent living, and recreation".

Social Security Act, Budget Reconciliation Act of 1986 (P. L. 99-509) (Medicaid)
"prosthetic device" defined as:

"the systematic application of technology, engineering methodologies, or scientific principles to meet needs of individulas with handicaps in areas which include education, rehabilitation, employment, transportation, independent living, and recreation".

(Medicare)

Although the term 'assistive technology devices' is not specifically used in this legislation, payment may be considered if it meets the definitional criteria test.

1. Is it a replacement of a body part or function?
2. Is it a medical necessity?
3. Is it of reasonable cost?

Veterans Administration

"prosthetics" defined as:

"a broad term used to identify the total concept of the fields of prosthetics, orthotics, sensory aids, aids for the blind, medical equipment, medical supplies, components, and repairs. This term may be used to refer to prosthetic administration, research, education and training, appliances, services, and any other related aspects of the total program."

Private Insurance

In the standard package of 'covered charges' used by many insurance companies, the usual wording used is*other therapeutic services and supplies.* If coverage is desired to be expanded to include a specific device, the insurance broker could be requested to change the wording to read *other therapeutic and prosthetic services and supplies.* By specifically mentioning 'prosthetic services', the insurance company may be able to recognize the technology needed by the insured person on the policy. When applying to Blue Cross/Blue Shield, it should be stressed that the device will serve a *prosthetic purpose*, meaning that it will take the place of a part of the body that isn't working well enough or isn't there. Many insurance companies will pay for technology devices which can help restore people to *functioning levels* and take the place of a body part that isn't working.

Funding Terminology

In order to secure needed technology, consumers must often work with teams of professionals from various agencies. Each agency, depending upon its funding source, may provide technology to consumers only if certain words, or terminology, is used in completing applications or forms requesting assistance. Consumers must be aware of the terminology that has to be used to get devices. In the process of obtaining information from agencies and organizations which might fund technology, the consumer should request copies of the criteria used to justify the purchase of a particular technology. Key concepts which should be remembered and phrases from the four major federal funding sources for assistive technology are noted below. Several of these funding sources have as a critical ingredient the development and implementation of individual program plans.

- **Special Education (0-3 years)**

  Concept: "early intervention services necessary to meet the unique needs of the child and the family"

  Phrases:
  "occupational therapy"
  "adaptation of the environment"
  "to facilitate development and promote the acquisition of functional skills"

  Type service plan: Individual Family Services Plan (IFSP)

- **Special Education (3-21 years)**

  Concept: "to benefit from special education"

  Phrases:
  "the child needs the services to benefit from special education"
  "any supplemental aid or service that would enable a child placed in a regular education environment"
  "related services includes transportation and such develop mental, corrective, and other supportive services as are required to assist a handicapped child to benefit from special education"
  "case by case basis"

  Type service plan: Individual Education Plan (IEP)

- **Vocational Rehabilitation**

  Concept: "employability" "securing competitive employment"

  Phrases: "rehabilitation technology services to render an individual with a disability employable"
  "telecomunications, sensory and other technological aids and devices"
  "case by case basis"

  Type service plan: Individual Written Rehabilitation Plan (IWRP)

- **Medicaid**

  Concept: "reduction of physical or mental disability and restoration of the patient to his best possible functional level"

  Phrases: "prosthetic devices"
  "other ...preventative and rehabilitative services"

- **Medicare**

  Concept: "medical necessity prescribed by a physician"

  Phrases: "replacement of all or part of a body organ"
  "makes a meaningful contribution to the treatment of an illness or to improvement of a malformed body member"
  "durable medical equipment"
  "prosthetic devices"

- **Insurance Companies**

  Concept: "condition results from illness or accident; device must be prescribed by physician; musty be one of covered charges of policy"

  Phrases: "other therapeutic and prosthetic services and supplies"
  "prosthesis to replace organ or limb"
  "improves condition of patient"

When the consumer or others submit documentation to a funding source with a claim for funding, the preceding concepts and key phrases should be kept in mind.

Assembling Supportive Documents

What They Should Say

To be able to produce an effective supportive document, consumers need to know how to address the funding source requirements. The consumer and others may have to argue some of the stipulations; the consumer may have to do a little researching to address the specifications. Medicare, Medicaid, and Insurance policy definitions will be addressed below.

Medicare

Medicare has a list of major classifications of covered services, supplies, and equipment. Either one or two of them could be applicable to a variety of technologies, including communication aids:

- Rental and purchase of durable medical equipment
- Prosthetic devices

If the consumer knows how Medicare defines these classifications, they can address them with a more positive approach.

Durable medical equipment (DME). DME is covered if it meets the definition of durable medical equipment and if it is "necessary and reasonable for the treatment of an illness or injury or to improve the functioning of a malformed body member".

Definition of "durable medical equipment":

1. Can withstand repeated use;
2. Primarily and customarily used to serve a medical purpose;
3. Generally is not useful to a person in the absence of illness or injury; and
4. Appropriate for use in the home.

Even if an item is not "primarily and customarily used to serve a *medical purpose*"(2), and/or "generally not useful in the absence of illness or injury" (3), it can still meet the definition of DME if it can be clearly shown that it *serves a therapeutic purpose* in the consumer's case.

Medical purpose may be determined by opinions of local medical organizations and specialists in the field of physical medicine and rehabilitation.

Medicaid

Though the federal government provides from 50% to 80% of the costs of Medicaid programs, the States, except for certain basic services, may provide a number of other services *if they elect to do so*. Because of these variations in benefits offered, the Medicaid programs differ widely across the country. In Arkansas, relatively few trechnologies are covered by Medicaid. These include ambulation aids (canes, crutches, walkers); mobility aids (manual wheelchairs); bedroom aids (manual hospital beds, side rails); and sensory aids (hearing aids and glasses up to age 21).

Greater flexibility to obtain funding for technology may exist under one of the specified services that all states participating in the program must provide--early periodic screening, diagnostic and testing (EPSDT). This is a program administered through the Department of Human Services, Division of Economic and Medical Services. All children from 0-21 years of age who enter this program must be treated for any physical or mental problem identified during the screening and assessment process. Through the EPSDT program, technology can be provided to a consumer if it can be demonstrated to be necessary to treat such problems, even if these treatments are not included in the state's Medicaid plan.

Whether the application for funding is directed toward Medicare, Medicaid, Vocational Rehabilitation, Insurance, the educational system, or other funding streams, *demonstration of need* is the same. The medical prescription, the assessment/evaluation, and other supportive documents by the teacher, family, and the consumer can benefit by focusing on the definitions of Medicare or Medicaid as they apply to the consumer. The law is subject to interpretation by the courts, professionals, legislators, and others. Therefore, the key is to know and understand the definitions and to write the supporting document accordingly.

Look back over the preceding definitions. Some of the terminology to keep in mind include:

- Medicare: Medical necessity; necessary
- Insurance: Improve condition of patient
- Medicaid: ...and restoration of the patient to his or her best functional level

There is no set style, and no fixed phrasing of paragraphs. When the physician, speech therapist, occupational therapist, physical therapist, teacher, or others provide a supportive document to include with the claim for funding, they should keep these justifications in mind and apply those that fit in with their profession and their application to the consumer.

Descriptive Literature

No matter what the extent of advertising or dissemination of information of aids for consumers with disabilities, there are still many persons in positions as claims adjustors who are unaware of product existence. Therefore, it is important to include with an application printed literature describing the product. In so doing, the consumer may:

- decrease denials because the agent is unaware of the product; and
- facilitate decision-making because the agent can see and read about the technology, and he or she doesn't have to make inquiries or request literature

Another item that may be useful is news stories demonstrating what the device has done for others in rehabilitation.

[From: Hofmann, A. (1982). *The many faces of funding*. Mill Valley, CA: Phonic Ear, Inc., pp. 30-35]

Sample Justification

(Physician's recommendation for a speech device)

Dear Sir:

This letter is to reemphasize the necessity of an oral communicator as a rehabilitative device and lifelong communication requirement for (*name*). Your ruling of June 8, 1990 denied (*name*) this device. Please reconsider your judgment based on the following history and recommendations.

(Name) is a 12-year-ol black female who had the onset of Reye's Syndrome in February of 1989. You must understand some things about Reye's Syndrome to consider her case. Reye's Syndrome is a form of severe liver degeneration and encephalopathy. Until recently, it was almost 100% fatal. Recent techniques to aggressively managing children have provided complete cures. She was in a complete coma and received the aggressive management previously mentioned including artificial hyperventilation and the measurement of intercranial presure with a bolt placed into her skull. The brain damage and death occurs from severe brain swelling. She had a complicated form and was in a coma for approximately three weeks and hospitalized six weeks.

Because of her severe case of Reye's, her sequelae were identically as severe. Her most severe problem besides her cognitive involvement is her dysarthric speech, a handicap which magnifies her cognitive loss and makes her rehabilitation difficult and her social function in the family and society difficult. The oral communicator will remove much of the obstacle of her communicative difficulties. To deny her the communicator is in my medical judgment ludicrous!

To specifically address the refusal of June 8, 1989:

1. It is definitely necessary for her rehabilitation, treatment, and training to produce a beneficial result.

2. It will, by all means, improve communication of a malformed body member (this being her vocal pathway from the central nervous system to the vocal cords).

3. She has a mental and physical disability and the communicator addresses this.

4. This communicator would primarily and customarily be used to serve a medical or habilitative service.

In summary, (*name*) has a significant speech dysarthria that can be specifically habilitated with an oral communicator and possibly make her an independently functioning member of society. To deny her this will relegate her to a severely handicapped category which is unacceptable to me as a physician involved in child development.

[From: Hofmann, A. (1982). *The many faces of funding*. Mill Valley, CA: Phonic Ear, Inc., pp. 36-38]

Sample Justification

(Speech pathologist's recommendation for a speech device)

Dear Sir:

I am writing in behalf of the above-named, 26-year-old male patient who has been diagnosed as having multiple sclerosis with resultant quadriplegia, visual disturbances, and severe speech problems.

As part of his evaluation in the Audiology and Speech Pathology Department, he was referred for an evaluation to determine his candidacy for an alternative means of communication. Since his language and memory skills were essentially intact and his speech intelligibility was judged as being nonfunctional in most communicative situations, he was assessed with the HandiVoice Model 120 electronic communication aid (see the attached description of the aid). The results indicated that he displayed the potential for eventual independent operation of this device. Training ensued and he has made considerable progress within the past two to three weeks. He can generally formulate single sentences on the aid to express his needs, ideas, and feelings in an independent manner. This will allow him to convey routine information regarding his care and needs to his family and private care attendants as well as once again being able to express himself with friends on a social level. Because of the multiplicity of his deficits, no other alternative means of communication is commercially available or can be developed to fit his needs and current capabilities.

It is for these reasons that I am strongly recommending that this patient obtain this aid as soon as possible so that he can use it at home following his discharge from this facility.

[From: Hofmann, A. (1982). *The many faces of funding*. Mill Valley, CA: Phonic Ear, Inc., p. 39]

Sample Justification

(Speech pathologist's recommendation for a speech device)

Gentlemen:

This letter is in support of the purchase of a Speech Prosthetic Device for one of our patients, (*name*).

She is a 23-year-old, nonverbal woman with cerebral palsy, severe athetosis and dysarthria who has been a resident of the Developmental Center from 8/22/76 to 10/20/86. She is now a resident in a group home for adolescents with physical disabilities. She also attends a sheltered workshop where she is the only employee with a physical disability. She is unable to express her thoughts and needs because her peripheral speech mechanism is impaired. Miss (*name*) therefore cannot communicate with the staff and her parents in her home, at the workshop, or in the community.

Our evaluation team has found that Miss (*name*) has adequate receptive language for communication but has limited means of expression. During her 3-month stay here, she has been successful in using a synthetic device known as the HandiVoice, Model HC110. By touching selected sensitized squares on this device, she can express her thoughts and needs through an artificial voice. Enclosed is a brochure that fully describes this device. We have evaluated Miss (*name*) on many alternate means of communication. The Handivoice is by far the best system for her disability. She has demonstrated excellent progress and potential for good function with this apparatus. Because of the significant improvement in Miss (*name's*) quality of life made possible by the HandiVoice, its purchase is justifiable and essential.

[From: Hofmann, A. (1982). *The many faces of funding*. Mill Valley, CA: Phonic Ear, Inc., p. 43]

Sample Justification

(Psychologist's recommendation for a speech device)

Dear Sir:

Please consider this letter and the attached reports as an official request for reconsideration of the ruling of June 10, 1990 re: (*name*).

We believe the request for the purchase of the HC 120 Phonic Mirror HandiVoice is valid and appropriate. This child suffers from various medical and psychological sequelae from post-Reye's Syndrome status. One of the most prominent handicaps she has and will probably always have is the lack of ability to communicate orally. This lack of ability is both important on a daily and a survival basis. On a daily basis, the child needs to be able to express her thoughts and feelings to the world, including special education teachers, parents, and others. She could also communicate over the telephone with this device, as her receptive vocabulary is adequate. On a survival basis, the ability to communicate with this device either on the phone or in person could possibly be a life saving matter in emergency situations.

Without this communication device, the child's physical and emotional status will quite probably deteriorate as she continues to go through life extremely frustrated due to the lack of ability to communicate orally.

This device is most definitely and primarily a rehabilitative one in that it will be an agent of oral communication that the child will need for life and is, in fact, an absolute necessity for any progress to be realized.

In summary, we think that the communication device is most definitely needed to prevent further damage and discomfort to her physically impaired speech apparatus. The child experiences great discomfort in trying to "grunt" her requests. Without the device, further deterioration will probably occur. Based on these facts, we hope you will see the only objective answer that can be drawn: to provide this child with this communication device. It is medically and psychologically mandatory.

Thank you very much for reconsideration and I look forward to hearing from you soon.

Sincerely,

[From: Hofmann, A. (1982). *The many faces of funding*. Mill Valley, CA: Phonic Ear, Inc., p. 47]

Bob

Bob is a 60-year-old who has significant needs for technology. He was in an institution for persons with severe mental retardation during the earliest years of his life. During young adulthood he resided in a small residential facility, and in the most recent years he has lived in an independent living setting with 7 other men and women. Bob has expressed a need for a new augmentative communication device, a wheelchair, and adaptations in the bathroom where he resides. His medical needs are also becoming more frequent since he has recurring upper respiratory problems as he gets older.

1. What are some of the important contacts for potential funding for Bob's technology needs?

   wheelchair:

   augmentative communication device:

   medical needs:

2. What are some important considerations that should be addressed in attempting to get funding through each of these sources?

Individual and Systems Change

There are four federal mandates that have as an important ingredient of service provision the development and implementation of individual program plans.

The four mandates are:

Program	Plan
• Early Intervention	Individual Family Services Plan (IFSP)
• Special Education	Individual Education Plan (IEP)
• Vocational Rehabilitation	Individual Written Rehabilitation Plan (IWRP)
• Medicaid (ICF/MR)	Individual Habilitation Plan (IHP)

Thousands of children and adults with disabilities in Arkansas are the focus for discussion of unmet needs as part of the development of these four state plans on an annual basis.

If you have been involved in the development of any of these plans in the past, please respond to the following questions as they pertain to the plan with which you are familiar. For each of the four plans:

1. Are technology needs routinely considered and documented? (in the areas of communication, mobility, assisted learning, environmental control, or modification?)

2. If not, are the policies in writing that specifically prohibit consideration of such needs?

3. If the prohibition is not a policy but a common practice or custom, have you asked the lead agency official to describe the practice in writing for your records?

4. Is there a standard or standards to assess needs for assistive technology devices or services?

5. Have you secured a copy of the standards in writing and learned whether it is a state policy or just a common practice?

6. If the standard of need was met, did the lead agency fund at no cost the recommended technology services and devices?

7. Was the funding source a payor of last resort?

8. Were there limits placed on the the cost per individual or the scope of services to be provided?

9. Were the services time limited?

10. Did you have the right to refuse co-party payments by your insurance company? Under what conditions?

11. Were you entitled to an independent evaluation of need? Who was determined to bear the cost for that evaluation?

12. Did you have the opportunity to appeal the decision regarding need, eligibility, service scope or duration?

13. If you did appeal any decisions made, what was the process? Were you entitled to the disputed services pending appeal?

From: Morris, M. W. (1990). *Assistive Technology Funding. A User Friendly Workbook*. (Developed in cooperation with the RESNA Technical Assistance Project and United Cerebral Palsy Association, Inc.). Washington, DC: RESNA Technical Assistance Project, pp. 24-25.

Resources

Center for Special Education Technology
Council for Exceptional Children
1920 Association Drive
Reston, VA 22091
(703) 620-3660
(800) 873-8255

Documents provided free of charge on request:

Directory of Assistive Technology Data Sources
The Marketplace: Special Edition: P.L. 100-407
Tools for a Lifetime
Assistive Technology Resource Directory
Tech Use Guides:

- *Guide for Teachers*
- *Guide for Disabled Adults*
- *Preschool Children*
- *Hearing Impairments*
- *Telecommunication Networks*
- *Guide for Parents*
- *Selecting Hardware*
- *Learning Disabilities*
- *Visual Impairments*
- *Technology in the Workplace*

Future Products:

- *Assistive Technology Curriculum Outline*
- *Assistive Technology: The Role of the Team*
- *Technology User in the Classroom Series*

IBM National Support Center
for Persons with Disabilities
P.O. Box 2150
Atlanta, GA 30055
(800) 426-2133

Documents provided free of charge on request:

- *Resource Guide for Persons with Hearing Impairments*
- *Resource Guide for Persons with Learning Impairments*
- *Resource Guide for Persons with Mobility Impairments*
- *Resource Guide for Persons with Speech or Language Impairments*
- *Resource Guide for Persons with Vision Impairments*
- *Technology for Persons with Disabilities - An Introduction*

General Resources

Enders, A. (1989). *Assistive technology sourcebook.* Washington, DC: RESNA Press. [Available from RESNA, 1101 Connecticut Ave., NW, Suite 700, Washington, DC 20036]

Hagen, D. (undated). *Microcomputer resource book for special education.* Henderson, MN: Closing the Gap. [Available from Closing the Gap, P. O. Box 68, Henderson, MN 56044]

Office of Special Education Programs, Apple Computer, Inc. (1988). *Apple computer resources in special education and rehabilitation.* Allen, TX: DLM Teaching Resources. [Available from DLM, Inc., One DLM Park, Allen, TX 75002]

Office of Special Education and Rehabilitative Services (OSERS), U.S. Department of Education. (1989). Making the promise of technology a reality. *OSERS News in Print, 2.* Washington, DC: Author. [Available from OSERS News in Print, Room 3132, Switzer Building, 330 C St., SW, Washington, DC: 20202-2524]

Funding Resources

Enders, A. (1989). *Funding for assistive technology and related services: An annotated bibliography.* Washington, DC: Electronic Industries Foundation. [Available from Electronics Industries Foundation, Rehabilitation Engineer ing Center, 1901 Pennsylvania Avenue, NW, Washington, DC 20006 (202) 955-5822]

Hofmann, A. (1982). *The many faces of funding.* Mill Valley, CA: Phonic Ear, Inc. [Available from Phonic Ear, Inc., 250 Camino Alto, CA 94941 (415) 383-4000 or (800) 227-0735]

Markowicz, A., & Reeb, K. G. (1988). *An overview of Medicaid reimbursement for rehabilitation equipment in the United States.* Washington, DC: Electronic Industries Foundation. [Available from Electronics Industries Foundation, Rehabilitation Engineering Center, 1901 Pennsylvania Avenue, NW, Washington, DC 20006 (202) 955-5822]

Prentke Romich Company. (1989). *How to obtain funding for augmentative communication devices.* Wooster, OH: Author. [Available from Prentke Romich Co., 1022 Heyl Road, Wooster, OH 44691 (800) 642-8255]

Pressman, H. (Ed.). (1987). Funding technology: Ways through the maze. *The Exceptional Parent, 17*, 48-52.

Reeb, K. G. (1987). *Final report of the National Task Force on Third Party Payment for Rehabilitation Equipment.* Washington, DC: Electronic Industries Foundation. [Available from National Rehabilitation Hospital, 102 Irving Street, NW, Washington, DC 20010-2949 (202) 877-1932]

Reeb, K. G., Jr. (1987). *Revolving loan funds: Expanding equipment credit financing opportunities for persons with disabilities.* Washington, DC: Electronic Industries Foundation. [Available from National Rehabilitation Hospital, 102 Irving Street, NW, Washington, DC 20010-2949 (202) 877-1932]

Reeb, K. G., Jr. (1989). *Assistive financing for assistive devices: Loan guarantees for purchase of products by persons with disabilities.* Washington, DC: Electronic Industries Foundation. [Available from National Rehabilitation Hospital, 102 Irving Street, NW, Washington, DC 20010-2949 (202) 877-1932]

Reeb, K. G., Jr. & Stripling, T. E. (1989). *Payment for assistive devices by the Veterans Administration.* Washington, DC: Electronic Industries Foundation. [Available from Electronics Industries Foundation, Rehabilitation Engineering Center, 1901 Pennsylvania Avenue, NW, Washington, DC 20006 (202) 955-5822]

Rehabilitation Engineering Center. (1990). *An annotated bibliography on funding for technology.* Washington, DC: National Rehabilitation Hospital. [Available from National Rehabilitation Hospital, 102 Irving Street, NW, Washington, DC 20010-2949 (202) 877-1932]

Reimbursing adaptive technology (1989). *NAIRC Quarterly*, *2*. [Available from NAIRC Quarterly, 8455 Colesville Road, Suite 935, Silver Spring, MD 20910-3319]

Robinson, G. Insurance can help pay for adaptive equipment. *The Exceptional Parent*, *16*, 11-16.

Ward, C. (1989). *Subsidy programs for assistive devices.* Washington, DC: Electronic Industries Foundation. [Available from Electronics Industries Foundation, Rehabilitation Engineering Center, 1901 Pennsylvania Avenue, NW, Washington, DC 20006 (202) 955-5822]

Speech Resources

American Speech-Language-Hearing Association (ASHA). 10801 Rockville Pike,
Rockville, MD 20852

Artificial Language Laboratory, Michigan State University, Department of Audiology
and Speech Sciences, 405 Computer Center, East Lansing, MI 48824-1042

Rehabilitation Engineering Center on Augmentative Communication, University of
Delaware, Department of Computer and Information Science, Newark, DE 19711

The United States Society for Augmentative and Alternative Communication, c/o
Barkley Memorial Center, University of Nebraska, Lincoln, NE 68588

Readings - Computers

Burkhart, L. J. (1980). *Homemade battery powered toys and educational devices for severely handicapped children.* College Park, MD: Author. [Available from Linda J. Burkhart, 8503 Rhode Island Avenue, College Park, MD 20740]

Church, G., & Bender, M. (1989). *Teaching with computers. A curriculum for special educators.* Boston: College-Hill Press.

Eriksson, B., Gawell, A., Munthe, K., Riddar, A., Rygaard, K., Windling, U., & Zachrisson, G. (1987). *Activities using headsticks and optical pointers: A description of methods* (S. Robertson, Trans.). Bromma, Sweden: Handikappinstitutet. [Available from Trace R&D Center, University of Wisconsin-Madi son, The Waisman Center, 1500 Highland Avenue, Madison, WI 53705 (608) 292-6966]

Hahn, M., & Schmidt, D. (1986) A locking modification of the shift and other keys. *Closing the Gap*, *4*, 14. [Available from Closing the Gap, P. O. Box 68, Henderson, MN 56044 (612) 248-3294]

Thal, J. (1986). *Keyboard modifications. Washington Apple Pi*. [Available from Washington Apple Pi, Ltd., 8227 Woodmont Avenue, Suite 201, Bethesda, MD 20814 (301) 654-8060]

Vanderheiden, G. (undated). *Apple keyboard: Shift, control, and repeat key modification*. Unpublished manuscript, University of Wisconsin, Trace R&D Center, Madison, WI. [Available from Trace R&D Center, University of Wisconsin-Madison, The Waisman Center, 1500 Highland Avenue, Madison, WI 53705 (608) 262-6966]

Vanderheiden, G. (undated). *Apple II repeat key modifications for headstick and one-finger typists*. Unpublished manuscript, University of Wisconsin, Trace R&D Center Madison, WI. [Available from Trace R&D Center, University of Wisconsin-Madison, The Waisman Center, 1500 Highland Avenue, Madison, WI 53705 (608) 262-6966]

Readings - Speech

Berliss, J. R., Borden, P. A., & Vanderheiden, G. C. (1989). *Trace resource book: Assistive technologies for communication, control, and computer access*. Madison, WI: Trace Research and Development Center.

Burkhart, L. J. (1987). *Using computers and speech synthesis to facilitate communicative interaction with young and/or severely handicapped children*. College Park, MD: Author.

Helsel-Dewert, M., & Van Der Meiracker, M. (1987). The intelligibility of synthetic speech to learning handicapped children. *Journal of Special Education Technology*, *9*, 38-44.

Kannenberg, P., Marquardt, T. P., & Larson, J. (1988). Speech intelligibility of two voice output communication aids. *Journal of Communication Disorders*, *2*, 11-20.

Lahm, E. A. (Ed.).(1989). *Technology with low incidence populations: Promoting access to education and learning*. Reston, VA: Center for Special Education Technology.

Readings - Simple Technology

Levin, J., & Scherfenberg, L. (1986). *Breaking barriers: How children and adults with severe handicaps can access the world through simple technology.* Minneapolis, MN: AbleNet.

Levin, J., & Scherfenberg, L. (1987). *Selection and use of simple technology in home, school, work, and community settings.* Minneapolis, MN: AbleNet.

Periodicals - Speech

ASHA, American Speech-Language-Hearing Association, 10801 Rockville Pike,
Rockville, MD 20852

Assistive Technology, the official journal of RESNA. Demos Publications, Inc.,
56 Fifth Avenue, Suite 1018, New York, NY 10010

Augmentative and Alternative Communication, publication of the International Society for Augmentative and Alternative Communication. Williams and Wilkins,
428 East Preston Street, Baltimore, MD 21202

Closing the Gap, P. O. Box 68, Henderson, MN 56044

Communication Outlook, Artificial Language Laboratory, Michigan State University,
405 Computer Center, East Lansing, MI 48824-1042

Product Availability Resources

Closing the Gap, P. O. Box 68, Henderson, MN 56044 (612) 248-3294

LINC Resources, Inc., 4820 Indianola Ave., Columbus, OH 43214 (614) 885-5599

Trace Research and Development Center on Communication Control and Computer Access for Handicapped Individuals, University of Wisconsin at Madison, Room S-151 Waisman Center, 1500 Highland Ave., Madison, WI 53705-2280 (608) 262-6966

IBM/Special Needs Exchange, P. O. Box 18707, Washington, DC 20036 (703) 439-1492

Computerized Databases

ABLEDATA - Funded by the National Institute for Disability and Rehabilitation Research (NIDRR) of the U.S. Department of Education, ABLEDATA is a computer-based information service that stores more than 15,000 commercially available products from over 1,800 manufacturers. Detailed information about these products are available to individuals, families, employers, agencies, students, or rehabilitation professionals. A version of this database is also available on CD-ROM with periodic updates. Contact: ABLEDATA, Adaptive Equipment Center, Newington Children's Hospital, 181 East Cedar Street, Newington, CT 06111 (203) 667-5405, or by direct access from the Bibliographic Retrieval Services Information Technologies (BRS) (800) 345-4277

Shared Communication and Assistance Network (SCAN) - SCAN is an electronic communication system which consists of Electronic Mail, Bulletin Boards, and Specialized Databases. This network provides University Affiliated Programs and other human services agencies and organizations with a wide variety of information and resources related to the special needs of individuals with disabilities. SCAN is operated by the American Association of University Affiliated Programs (AAUAP). Contact: AAUAP, 8605 Cameron Street, Suite 406, Silver Spring, MD 20910 (301) 588-8252

SpecialNet - This is an electronic communication system which consists of Electronic Mail, Bulletin Boards, and Databases. This network provides parent and professional users with immediate access to a large, national network which provides information exchange, technical assistance, and resource sharing. Contact: SpecialNet, GTE Education Services, Inc., 2021 K Street, NW

Videotapes

Computers

Apple Computer, Inc. (undated). *A new chapter.* (Videotape). Cupertino, CA: Author. [Available through local Apple Computer distributor]

Apple Computer, Inc. (undated). *Support tools.* (Videotape). Cupertino, CA: Author. [Available through local Apple Computer distributor]

Association for Retarded Citizens. (undated). *A new horizon*. (Videotape). Arlington, TX: Author. [Available from Association for Retarded Citizens/Arkansas, Union Station Square #412, Little Rock, AR 72201 (501) 375-4464]

Association for Retarded Citizens. (undated). *Achieving new horizons together*. (Videotape). Arlington, TX: Author. [Available from Association for Retarded Citizens/Arkansas, Union Station Square #412, Little Rock, AR 72201 (501) 375-4464]

Malcomb Projects. (1988). Constructing a battery interrupter and a tread switch (Videotape). Macomb, IL: Author. [Available from Macomb Projects, College of Education, 27 Horrabin Hall, Western Illinois University, Macomb, IL 61455 (309) 298-1634]

Augmentative Communication

American Speech-Language-Hearing Association. (1986). *Talk is NOT a four-letter word*. (Videotape) Rockville, MD: Author. [Available from American Speech-Language-Hearing Association, 10801 Rockville Pike, Rockville, MD 29852 (309) 298-1634]

Technology - General

Arkansas Research and Training Center in Vocational Rehabilitation. (undated). *Explorer*. (Videotape). Hot Springs, AR: Author. [Available from Division of Rehabilitation Services, P.O. Box 1437, Slot 2300, Little Rock, AR 72203 (501) 682-6690]

Curriculum Update

Three additional technology curricula have been developed and are designed for use with parents, university students, and professionals. Supplementary publications which may be used with these curricula focus on four target audiences of persons with disabilities: infants, parents and students, the work age population, and the elderly. One supplementary publication titled *Assistive Technology and Disabilities...A Guide for Parents and Students* is currently available and is being distributed in Arkansas. Three other documents will be available by mid-summer. Information regarding how the curricula and the other supplementary publications may be ordered can be obtained by writing or calling the following **before August 1, 1990**:

Arkansas Technology Information System (ARTIS)
Arkansas Division of Rehabilitation Services
P. O, Box 1437/Slot 2300
Little Rock, AR 72203
(800) 828-2799 or (501) 371-3566

After August 1, 1990, ARTIS will be relocating at the following address:

Arkansas Technology Information System (ARTIS)
2201 Brookwood, Suite 117
Little Rock, AR 72202
(800) 828-2799 or (501) 371-3566